Attachment A

Specification for: **Charleston Fire Department**	Bidder Complies	
	Yes	No

SPECIFICATIONS FOR ONE CAB FORWARD RESCUE FOUR DOOR CAB WITH WALK-IN

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery of one complete fire apparatus. These detailed specifications cover the requirements as to the type of construction and tests to which of the apparatus should conform, together with certain details as to finish, equipment and appliances with which the successful Vendor should conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the Contractor. The Manufacturer should provide loose equipment only when specified by the customer. However, in accordance with the current edition of NFPA 1901 standards, the proposal should specify whether the fire department or apparatus dealership should provide required loose equipment.

In order to ensure fair, ethical, and legal competition, neither original equipment manufacturer (OEM) nor parent company of the OEM should have ever been fined or convicted of price fixing, proposal rigging, or collusion in any domestic or international fire apparatus market.

Proposals should only be considered from companies that have an established reputation in the field of fire apparatus construction. Further, Vendor should maintain dedicated service facilities for the repair and service of products. Evidence of such a facility should be included in Vendor's proposal.

Each Vendor should furnish satisfactory evidence of their ability to construct the apparatus specified and should state the location of the factory where the apparatus is to be built. The Vendor should also show that the company is in position to render prompt service and to furnish replacement parts.

Each proposal should be accompanied by a detailed set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus furnished under contract should conform. These specifications should indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the apparatus should embody the latest approved automotive engineering practices. The workmanship should be of the highest quality in its respective field. Special consideration should be given to the following points: Accessibility to various components that require periodic maintenance; ease of operation (including both pumping and driving); and symmetrical proportions. Construction should be rugged and ample safety factors should be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under Performance Tests and Requirements. Welding should not be employed in the assembly of the apparatus in a manner that should prevent the ready removal of any component part for service or repair. All steel welding should follow American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding should follow American Welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding should follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. Employees classified as welders are tested and certified to meet American Welding Society codes upon hire and every three (3) years thereafter. The Manufacturer should be required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pop-rivets, self-tapping screws or sheet metal screws should not be used in any applications throughout this unit without prior approval of the Charleston Fire

Department. Attaching devices should be approved by the Charleston Fire Department.

INFORMATION REQUIRED

The Manufacturer should supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate should be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

PERFORMANCE TESTS AND REQUIREMENTS

A road test should be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more should be made under all driving conditions, during which time the apparatus should show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles should run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle should adhere to the following parameters:

A) The apparatus, when fully equipped and loaded, should have not less than 25 percent nor more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

B) The apparatus should be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.

C) The service brakes should be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system should conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

D) The apparatus, fully loaded, should be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the Vendor within 30 days of the date of the first trial. Such trials should be final and conclusive and failure to comply with these requirements should be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the Vendor of such changes, should also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the Vendor should not constitute acceptance.

LIABILITY
The successful Vendor should defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

SPECIFICATION PROPOSAL REQUIREMENTS
Vendors should also indicate in the "Yes/No" column if their proposal complies on each item/paragraph specified. Exceptions should be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. Any deviation from specifications must be explained at detail. Any deviation from the specifications will be graded on.

Also, Vendors should submit a detailed proposal. A letter only, even though written on a company letterhead, should not be sufficient.

EXCEPTIONS
All exceptions should be stated no matter how seemingly minor. Any exceptions not taken should be assumed by the purchaser to be included in the proposal, regardless of the cost to the Vendor.

GENERAL CONSTRUCTION
The apparatus should be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution should be in accordance with the recommendations of the National Fire Protection Association.

COMMERCIAL GENERAL LIABILITY INSURANCE
The Contractor should maintain liability insurance as listed on page 14-16.

SINGLE SOURCE MANUFACTURER
Bids should only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab, pump house and body. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body and chassis). The bidder should provide evidence that they comply with this requirement.

NFPA 2009 STANDARDS
This unit should comply with the NFPA standards effective January 1, 2009, except for fire department specifications that differ from NFPA specifications. These exceptions should be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces should be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated should be provided. This plate should show the overall height, length, and gross vehicle weight rating.

The Manufacturer should have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company should designate in writing who is qualified to witness and certify test results.

NFPA COMPLIANCE

Apparatus proposed by the Vendor should meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications should be indicated in the proposal as "non-NFPA".

TOTAL VEHICLE ASSESSMENT CERTIFICATION

The apparatus should be third party, independent, audit-certified through Underwriters Laboratory (UL) to the current edition of NFPA 1901 standards. The certification includes: all design, production, operational, and performance testing of the apparatus.

PUMP TEST

The pump should be tested, approved, and certified by Underwriter's Laboratory at the Manufacturer's expense. The test results and the pump Manufacturer's certification of hydrostatic test; the engine Manufacturer's certified brake horsepower curve; and the Manufacturer's record of pump construction details should be forwarded to the Charleston Fire Department.

PERFORMANCE BOND

A 100% performance bond will be required by the vendor awarded this RFP.

PROPOSAL DRAWING

A “D” size drawing of the proposed apparatus should be provided in the bid proposal for review.

APPROVAL DRAWING

A drawing of the proposed apparatus should be provided for approval before construction begins. The sales representative should also have a copy of the same drawing. The finalized and approved drawing should become part of the contract documents. This drawing should indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus should be prepared and submitted by the Manufacturer to the purchaser showing any changes made to the approval drawing.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, should be provided.

CONSTRUCTION PROGRESS PHOTOS

The successful Vendor should provide weekly photographs of the apparatus or the major components as they are being constructed. The photos should commence at the beginning of the manufacturing process and should continue until just prior to the final inspection. There should be approximately six (6) weekly reports illustrating the progress of the apparatus through the course of each week. Special attention should be given to show the unique features and aspects of the apparatus as construction progresses.

CUSTOMER REFERENCE LIST

A customer reference list should be provided with each bid. The reference list should include a minimum of ten (10) Departments (5 within South Carolina and 5 within Georgia & North Carolina) who currently operate the brand of apparatus being proposed. Reference information should include but not limited to department name, contact information and make/model of apparatus in service.

SOUTH CAROLINA DEALER LICENSE

Each Vendor must provide with proposal a valid and current copy of their South Carolina Dealer License as issued by the South Carolina Department of Motor Vehicles.

This license requirement is to assure the Vendor is legally authorized to engage in the sale of motor vehicles within the State of South Carolina.

LOCAL SERVICE FACILITY

Each Vendor must provide with proposal proof of dealer owned and operated Service Facility located within 300 miles of Charleston, SC along with factory trained service personnel. Service personnel should be factory trained to handle parts and warranty repair for their respective Manufacturer.

In addition, local Service Facility must have the capability to dispatch factory trained service technicians with dealer operated mobile service units to Department location for field service repairs.

PRE-CONSTRUCTION CONFERENCE

Prior to any construction of apparatus a pre-construction conference should be held at the Manufacturers facility for six (6) Department personnel to review approval drawing package. Motel, meals and travel should be the responsibility of the successful Vendor for no more than 2 nights. The sales representative should be present and assist in the conference.

MID-POINT INSPECTION
A mid-point inspection should be provided at the Manufacturer's facility to assess the progress of the apparatus construction and ensure the apparatus is being constructed according to the specification. Motel, meals and travel expenses for six (6) Department personnel should be the responsibility of the successful Vendor for no more than 2 nights. The sales representative should be present and assist in the inspection process.

FINAL INSPECTION
A final inspection should be provided at the Manufacturer's facility for inspection of the completed unit. Motel, meals and travel expenses for six (6) Department personnel should be the responsibility of the successful Vendor for no more than 2 nights. The sales representative should be present and assist in the inspection process.

DELIVERY
The completed apparatus should be delivered to the Charleston Fire Department under its own power to insure proper break in of all components while still under warranty. Rail or truck freight is not acceptable. A qualified delivery engineer representing the Vendor/Manufacturer should deliver the apparatus to a location designated by the Charleston Fire Department.

TRAINING AND FAMILIARIZATION
The Vendor/Manufacturer should provide the following training/familiarization as part of the purchase:

- Apparatus Operation: Minimum three (3) days at or about the time of delivery to familiarize department officers and drivers on the vehicle's operating characteristics. The apparatus must be present for the training.
- Mechanical: If the apparatus is multiplexed, the Vendor/Manufacturer should provide travel, lodging and enrollment for one (1) Charleston Fire Department service technician to attend the Vendor/Manufacturer's multiplex training class.

CHASSIS
Chassis provided should be a new, tilt-type, cab forward fire apparatus. The chassis should be manufactured in the apparatus body builder's facility, thus eliminating any split responsibility. The chassis should be designed and manufactured for heavy-duty service with adequate strength and capacity to sustain the intended load and the type of service required.

FRAME
The chassis frame should be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus.

FRONT AXLE
The front axle should be a reverse "I" beam type with inclined kingpins. It should be a Meritor™.

The turning angle should be 45 degrees or greater, per the specified axles, wheels and tires.

A viewing window should be provided on each side of the axle for checking the oil level.

FRONT SUSPENSION
Front springs should be a heavy-duty, taper leaf design, 54.00" long by 4.00" wide, with a ground rating for the weight of apparatus.

SHOCK ABSORBERS
Heavy-duty telescoping shock absorbers should be provided on the front axle.

OIL SEALS
Oil seals with viewing window should be provided on the front axle.

FRONT TIRES
The front tires should be Michelin 385/65R22.50 radials, 18 ply XFE wide base tread.

The tires should be mounted on Alcoa 22.50" x 12.25" polished aluminum disc-type wheels with a ten (10)-stud, 11.25" bolt circle.

REAR AXLE
The rear axle should be a Meritor™

TOP SPEED OF VEHICLE
A rear axle ratio should be furnished to allow the vehicle to reach a top speed of 65 MPH.

REAR SUSPENSION
The rear springs should be semi-elliptical, 3.00" x 52.00", 12 leaves with a ground rating for the weight of the apparatus. Spring hangers should be castings with provisions for lubrication. The grease fittings should be 90-degree type and should be accessible without removing the wheels or cutting any sheet metal. Two (2) top leaves should wrap the forward spring hanger pin and the top leaf should wrap the rear spring hanger pin on both the front and rear suspensions.

OIL SEALS
Oil seals should be provided on the rear axle.

REAR TIRES
Rear tires should be four (4) Michelin 12R22.50 radials, 16 ply "all position" XZY 3 tread.

The tires should be mounted on Alcoa 22.50" x 8.25" polished aluminum disc wheels with a ten (10)-stud 11.25" bolt circle.

LUG NUT COVERS
Chrome plated lug nut covers should be installed on all lug nuts.

TIRE BALANCE
All tires should be balanced with Counteract balancing beads. The beads should be inserted into the tire and eliminate the need for wheel weights.

TIRE PRESSURE MANAGEMENT
There should be a tire alert pressure management system provided that should monitor each tire's pressure. A chrome plated brass sensor should be provided on the valve stem of each tire for a total of six (6) tires.

The sensor should calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor should activate an integral battery operated LED when the pressure of that tire drops eight (8) psi.

Removing the cap from the sensor should indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED should immediately start blinking.

HUB PILOTED WHEELS
Hub piloted wheels should be provided.

HUB COVERS (front)
Stainless steel hub covers should be provided on the front axle. An oil level viewing window should be provided.

MUD FLAPS
Mud flaps should be installed behind the front and rear wheels of the apparatus.

ANTI-LOCK BRAKE SYSTEM
The vehicle should be equipped with a Wabco 4S4M, anti-lock braking system. The ABS should provide a four (4) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology should control the anti-lock braking system. Each wheel should be monitored by the system. When any particular wheel begins to lockup, a signal should be sent to the control unit. This control unit then should reduce the braking of that wheel for a fraction of a second and then reapply the

brake. This anti-lock brake system should eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

ANTI-LOCK BRAKE SYSTEM WARRANTY
The Wabco ABS system should come with a three (3) year or 300,000 mile parts and labor warranty provided by Meritor Wabco Vehicle Control Systems.

BRAKES
The service brake system should be full air type by Meritor™.

Front brakes should be 16.50 X 6.00 cam operated with automatic slack adjusters with heavy-duty cast shoes with severe service shoes.

The rear brakes should be 16.50" x 7.00" S cam operated with automatic slack adjusters with heavy-duty cast shoes with severe service shoes.

AIR COMPRESSOR, BRAKE SYSTEM
The air compressor should be a Cummins/Wabco with 18.7 cubic feet per minute output.

BRAKE SYSTEM
The brake system should include:

- Bendix-Westinghouse dual brake treadle valve with vinyl covered foot surface
- A heated automatic moisture ejector on air dryer
- Total air system capacity of 4,362 cubic inch
- Two (2) air pressure gauges with red warning light and audible alarm, that activates when air pressure falls below 60 psi
- Bendix spring set parking brake system
- Parking brake operated by a Bendix-Westinghouse PP-1 control valve
- A parking "brake on" indicator light on instrument panel
- Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, should be provided with an automatic spring brake application at 40 psi

The air tank should be primed and painted to meet a minimum 750hour salt spray test.

To reduce the effects of corrosion, the air tank should be mounted with stainless steel brackets.

- Wabco System Saver 1200 air dryer with spin-on coalescing filter cartridge
- 100Watt Heater

BRAKE LINES
Color-coded nylon brake lines should be provided. The lines should be wrapped in a heat protective loom where necessary in the chassis.

AIR SYSTEMS FITTINGS
All air systems fittings should be brass compression fittings.

AIR INLET
One (1) air inlet with male coupling should be provided. It should allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet should be located in the driver side lower step well of cab. A check valve should be provided to prevent reverse flow of air. The inlet should discharge into the "wet" tank of the brake system. A mating female coupling should also be provided with the loose equipment.

AUTOMATIC MOISTURE EJECTOR(S)
Three (3) automatic moisture ejectors should be installed in the brake system.

The moisture ejector(s) should be provided on the standard location reservoir(s).

ENGINE
An electronically controlled engine as described below should power the chassis:

Make:	Cummins / Detroit
Power:	450 HP
Fuel:	Diesel
Cylinders:	Six (6)
Starter:	Compatible with engine size.
Fuel Filters:	Spin-on style primary filter with water separator & water-in-fuel sensor. Secondary spin-on style filter.
Coolant Filter:	Spin-on style with shut off valves on the supply and return line.

HIGH IDLE
A high idle switch should be provided, inside the cab, on the instrument panel, that should automatically maintain a preset engine rpm. A switch should be installed, at the cab instrument panel, for activation/deactivation. The high idle should be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light should be provided, adjacent to the switch. The light should illuminate when the above conditions are met. The light should be labeled "OK to Engage High Idle."

ENGINE BRAKE
A Jacobs engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver should be able to turn the engine brake system on/off and have a high and low setting.

The engine brake should be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system should automatically disengage the auxiliary braking device, when required.

FAN CLUTCH
Fan Clutch should cycle as designed.

ENGINE AIR INTAKE
The air intake with an ember separator should be mounted high on the passenger side of the cab, to the front of the crew cab door. The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.

The ember separator should be easily accessible through a hinged stainless steel grille, with one (1) flush quarter turn latch. Engine air filter should be mounted above the frame rails.

EXHAUST SYSTEM
The exhaust system should be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device, and should be 4.00" in diameter. The exhaust system should include a diesel particulate filter (DPF) and an SCR device to meet current EPA standards. An insulation wrap should be provided on all exhaust pipe between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust should terminate horizontally ahead of the passenger side rear wheels. A tailpipe diffuser should be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields should be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

EXHAUST MODIFICATION
The exhaust pipe shall be brought out from under the body at a 90-degree angle from the truck. The tail pipe shall extend a minimum of 2.00" past the body, adaptable for the Plymovent tailpipe adapter conical. The Plymovent tailpipe adapter conical must be in place before apparatus is delivered. **(No Exception)**

There shall be a clearance of 4.00" completely around the pipe once past the side of the body. The Plymovent adapter will be the current style used by the Charleston Fire Department.

RADIATOR
The radiator and the complete cooling system should meet or exceed NFPA and engine Manufacturer cooling system standards.

For maximum cooling performance, the radiator core should be made of copper fins having a serpentine design, soldered to brass tubes. The tubes should be welded to brass headers using the patented Beta-Weld process for increased strength, longer road life and solder-bloom corrosion protection. The radiator core should have a minimum frontal area of 1396 square inches. Steel supply and return tanks should be bolted to the core headers and steel side channels to

complete the radiator assembly. The radiator should be compatible with commercial antifreeze solutions.

The radiator should be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly should be isolated from the chassis frame rails with rubber isolators.

The radiator should include an integral deaeration tank, with a remote-mounted overflow tank. For visual coolant level inspection, the radiator should have a built-in sight glass. The radiator should be equipped with a 15psi pressure relief cap.

A drain port should be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan should draw in fresh, cool air through the radiator. Shields or baffles should be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates, or Goodyear, rubber hose should be used for all engine coolant lines installed by the chassis Manufacturer.

Hose clamps should be stainless steel constant torque type to prevent coolant leakage. They should react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 60-75-gallon fuel tank should be provided and mounted at rear of chassis. The tank should be constructed of 12-gauge, hot rolled steel. It should be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank should be mounted with stainless steel straps.

A .75" drain plug should be provided in a low point of the tank for drainage.

A fill inlet should be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A .50" diameter vent should be provided running from top of tank to just below fuel fill inlet.

The tank should meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines should be provided as recommended by the engine Manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5-gallon diesel exhaust fluid (DEF) tank should be provided and mounted on the apparatus. The tank should be constructed of 16-gauge type 304- L stainless steel.

A .50" drain plug should be provided in a low point of the tank for drainage.

A fill inlet should be provided and marked "Diesel Exhaust Fluid Only". The fill inlet should be located adjacent to the engine fuel inlet behind a common hinged, spring loaded, stainless steel door on the driver side of the vehicle.

The tank should meet the engine manufacturer's requirement for 10 percent expansion space in the event of tank freezing.

The tank should include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

TRANSMISSION

An Allison transmission to match the engine, electronic torque converting automatic transmission should be provided.

The transmission should be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display should indicate when service is due.

Two (2) PTO openings should be located on left side and top of converter housing (positions 9 o'clock and 3 o'clock).

A transmission temperature gauge with red light and audible alarm should be installed on the cab dash.

TRANSMISSION SHIFTER

A six (6) speed push button shift module should be mounted to right of driver on console. Shift position indicator should be indirectly lit for after dark operation. The transmission ratio should be 1st - 3.49 to 1.00, 2nd - 1.86 to 1.00, 3rd - 1.41 to 1.00, 4th - 1.00 to 1.00, 5th - 0.75 to 1.00, 6th - 0.65 to 1.00, R - 5.03 to 1.00.

TRANSMISSION COOLER

A transmission oil cooler should be provided in the lower tank of the radiator.

DRIVELINE

Drivelines should be a heavy-duty metal tube and be equipped with Spicer 1710 universal joints.

The shafts should be dynamically balanced before installation.

A splined slip joint should be provided in each driveshaft; slip joint should be coated with Glidecoat or equivalent.

STEERING
A Ross TAS-85 steering gear, with integral heavy-duty power steering, should be provided. For reduced system temperatures, the power steering should incorporate an air to oil cooler and a TRW model EV hydraulic pump with integral pressure and flow control. All power steering lines should have wire braded lines with crimped fittings.

A tilt and telescopic steering column should be provided to improve fit for a broader range of driver configurations.

STEERING ASSIST CYLINDER ON FRONT AXLE
The front axle should be equipped with a Ross power assist cylinder to aid in the steering of the apparatus.

STEERING WHEEL
The steering wheel should be a minimum18.00" in diameter have tilting and telescoping capabilities, and a four (4)-spoke design.

BUMPER
A one (1) piece bumper manufactured from a minimum .25" formed steel with a minimum .38" bend radius should be provided. The bumper should be a minimum of 10.00" high with a 1.50" top and bottom flange, and should extend 19.00" from the face of the cab. The bumper should be 95.28" wide with 45 degree corners and side plates. The bumper should be metal finished and painted job color.

To provide adequate support strength, the bumper should be mounted directly to the front of the C channel frame.

GRAVEL PAN
A gravel pan, constructed of bright aluminum tread plate, should be furnished between the bumper and the cab face. The pan should be properly supported from the underside to prevent flexing and vibration.

LIFT AND TOW MOUNTS
Mounted to the frame extension should be lift and tow mounts. The lift and tow mounts should be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes should be painted the same color as the frame.

FRONT BUMPER TRAYS (3) compartments WINCH middle
3 three compartment should be provided in the front bumper.

The middle compartment will be a winch compartment with a power supplied to it.

GRAVEL PAN

A gravel pan, constructed of bright aluminum tread plate, should be furnished between the bumper and cab face.

The gravel pan should be properly supported from the underside to prevent flexing and vibration of the aluminum tread plate.

TRAY COVER

A bright aluminum tread plate cover should be provided over the tray. The tray can extend above the bumper.

The cover should be attached with a stainless steel hinge and located bumper tray.

A lift and turn latch should secure the cover in the closed position and a pneumatic stay arm should hold the cover in the open position.

CAB

The cab should be designed specifically for the fire service and should be manufactured by the chassis builder.

The manufacturer must list the model of cab.

Construction of the cab should consist of 5052-H32 .125" aluminum welded to extruded aluminum framing or a comparable material.

The cab shall not exceed 96.00” wide.

The crew cab should be of the totally enclosed design with access doors constructed in the same manner as the driver and passenger doors.

The cab should be a full height raised roof, full tilt style. The engine should be easily accessible and capable of being removed with the cab tilted. The cab should be capable of tilting 45 degrees and 90 degrees with crane assist.

The cab should have a three (3)-point rubber mounting and should be tilted by a hydraulic pump connected to two (2) cab lift cylinders. The cab should then be locked down by a two (2)-point automatic locking mechanism that actuates after the cab has been lowered.

INTERIOR CAB INSULATION

The cab should include 1.50" insulation in the ceiling and side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

ENGINE TUNNEL
Engine hood sidewalls should be constructed of .50" aluminum. The top should be constructed of .19" aluminum and should be tapered at the top to allow for more driver and passenger elbowroom.

The engine hood should be insulated for protection from heat and sound. The noise insulation keeps the DBA level within the limits stated in the current NFPA series 1900 pamphlet. There should a metal mounting plate on top of the engine tunnel.

OVERHEAD CABINET
An overhead cabinet shall be provided. The cabinet shall be constructed of aluminum with hinged doors. The cabinet shall be painted the same color as the cab. The location of the cabinet shall be in the forward part of the raise cab in the angled section**.** There shall be an LED stripe light provided in this compartment.

DESK TOP ASSEMBLY
A desk assembly shall be mounted on the rear of the engine tunnel, between the wheel pedestals. The desktop surface shall be finished with white Nevarmar, easily removable to allow access to electrical distribution area in the engine tunnel. The desktop shall be slanted slightly when deployed. The desktop shall be a slide-out from under the metal mounting plate on top of the engine tunnel.

The work surface shall be secured when stowed and useable from the forward facing seats.

STORAGE COMPARTMENT
A storage compartment as high and wide and deep as possible shall be located at the passenger's side outboard rear facing seat position. There shall be a roll up door located in the front of the storage compartment. There shall be (1) one adjustable shelve located inside. The compartment shall be constructed of aluminum and painted to match the cab interior.

STORAGE COMPARTMENT
The storage compartment as high and wide and deep as possible shall be located at the driver's side outboard rear facing seat position. There shall be (2) access hole located in the rear, (1) one near the bottom and (1) one located near the middle. There shall be a roll up access door located in the front of the storage compartment. There shall be (1) one adjustable shelve located inside. The compartment shall be constructed of aluminum and painted to match the cab interior. (note the compartment will store a fax and printer) This compartment shall have an electrical power strip to power the fax and printer.

STORAGE COMPARTMENT LIGHT
Each storage compartment shall have a light mounted and be controlled by an automatic door switch.

FENDER LINERS
Full circular inner fender liners in the wheel wells should be provided.

REAR WALL COVERING
Bright aluminum tread plate should be overlaid on the outside rear wall of the crew cab except for areas that are not typically visible when the cab is lowered.

WINDSHIELD
A curved safety glass, two-piece windshield should be provided with a minimum of 2,754 square inches of clear viewing area. Single piece windshield that meets the same minimum square inches is acceptable. The cab windshield should have bright trim inserts in the rubber molding holding the glass in place. Economical windshield replacement glass should be readily available from local auto glass suppliers.

All cab glass should be tinted.

SUNVISORS
Two (2) smoked sun visors should be provided. The sun visors should be located above the windshield with one (1) mounted on each side of the cab.

WINDSHIELD WIPERS
Two (2) electric windshield wipers with washer should be provided that meet FMVSS and SAE requirements.

The washer reservoir should be able to be filled without raising the cab.

A glove box with a drop-down door should be installed in the front dash panel in front of the officer position.

CAB LIFT
A hydraulic cab lift system should be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

The hydraulic pump should have a manual override for backup in the event of electrical failure. The manual override should be located at the passenger side pump panel behind a polished s/s door.

Lift controls should be on a panel located on the pump panel or front area of the body in a convenient location.

Cab should be locked down by a two (2) point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

The hydraulic cylinders should be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

For increased safety, a redundant mechanical stay arm should be provided that must be manually put in place on the driver side between the chassis and cab frame when the cab is in the raised position. This device should be manually stowed to its original position before the cab can be lowered.

INTERLOCK, CAB LIFT TO PARKING BRAKE

The cab lift system should be interlocked to the parking brake. The cab tilt mechanism should be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released the cab tilt mechanism should be disabled.

SCUFFPLATE

An aluminum four-way scuff plate should be provided on the rear of engine tunnel, vertical surface. Scuff plate should be full width and full height.

STRIPE (On Paint Break)

There should be a gold leaf stripe provided on the paint break in place of chrome molding. The stripe should be on both sides of the cab and on the cab face with shield.

MIRRORS

A west coast mirror should be mounted on each side of the front cab door. Mirror dimensions should be 7.00" wide x 16.00" high, and should be heated. The passenger mirror will be motorized. The driver side mirror will be manual. The shell should be bright annealed stainless steel.

The mirror for the passenger side should have a remote control that is convenient to the driver. The cab mirrors should be lowered to avoided contact of striking arch.

SIDE VIEW MIRROR

An 8.00" diameter convex mirror should be provided over the officer's side front corner of the cab. The mirror should provide the driver with a view of the passenger side of the vehicle.

The mirror housing, tubing, clamps and hardware should be constructed of corrosion resistant stainless steel.

The west coast mirror heads should be mounted with two (2) side mount brackets in place of top and side mount brackets.

CONVEX MIRRORS

A 6.00" diameter round convex mirror should be installed below each west coast mirror head.

DOORS

The crew cab doors should be located on the sides of the cab and should be constructed in the same manner as the forward cab doors. The forward cab and crew cab doors should be constructed of extruded aluminum with a nominal material thickness of .125". The exterior door skins should be constructed from .090" aluminum or a comparable material. All doors should be barrier style.

All cab and crew cab entry doors should contain a conventional roll down window.

A flush mounted, chrome plated paddle type door handle should be provided on the exterior of each cab door. Each door should also be provided with an interior flush paddle handle.

The cab doors should be provided with both interior (rotary knob) and exterior (keyed) locks as required by FMVSS 206. The locks should be capable of activating when the doors are open or closed. The doors should remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a .38" pin and 11-gauge leaf should be provided on all cab doors. There should be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

Full height polished stainless steel scuff plates should be installed on the inside of all cab doors. Cab door panels should be removable without disconnecting door and window mechanisms.

A chrome handrail should be provided on the inside each front cab door, for ease of entry.

The cab steps at each door location should be located below the cab doors and should be exposed to the exterior of the cab.

CAB STEPS

The forward cab and crew cab access steps should be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps should be designed with a grip pattern punched into bright aluminum tread plate material to provide support, slip resistance, and drainage. The bottom steps should be a bolt-in design to minimize repair costs should they need to be replaced. The inside cab steps should not exceed 18.00" in height and be limited to two (2) steps. Three (3) step entrance designs should not be acceptable due to safety concerns. A slip-resistant handrail should be provided adjacent to each cab door opening to assist during cab ingress and egress.

STEP LIGHTS
For reduced overall maintenance costs compared to incandescent lighting, there should be four (4), LED, step lights provided. The lights should be installed at each cab and crew cab door, one (1) per step, in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

The lights should be activated when the adjacent door is opened.

FENDER CROWNS
Stainless steel fender crowns should be installed at the cab wheel openings. The fender crowns should have a radius outside corner that allows the fender crown to extend beyond the side wall of the front tires and also allow the crew cab doors to open fully.

CREW CAB WINDOWS
One (1) fixed window with tinted glass should be provided on each side of the cab, to the rear of the front cab door. The windows should be sized to enhance light penetration into the cab interior.

CAB INTERIOR
The cab dash fascia should be a flat faced design to provide easy of maintenance and should be constructed out of painted aluminum.

The engine tunnel should be padded and covered with 46-ounce leather grain vinyl resistant to oil, grease and mildew.

The headliner should be installed in both forward and rear cab sections. Headliner material should be vinyl. A sound barrier should be part of its composition. Material should be installed on aluminum sheet or a comparable material and securely fastened to interior cab ceiling.

Forward portion of cab headliner should provide easy access for servicing electrical wiring or for other maintenance needs without removing the entire unit.

CAB INTERIOR UPHOLSTERY
The cab interior upholstery should be red.

INTERIOR PAINT (Cab)
The cab interior metal surfaces should be painted red, vinyl texture paint.

CAB FLOOR
The cab and crew cab flooring should be constructed with bright aluminum tread plate.

CAB DEFROSTER

There should be a 41,000 BTU/hr. defroster in the cab located under the engine tunnel.

The defroster ventilation should be built into the design of the cab dash instrument panel and should be easily removable for maintenance.

The defroster should have a three (3) speed blower and temperature controls accessible to the driver and officer.

The defroster ducts should be designed to provide maximum defrosting capabilities for the front cab windows.

CAB/CREW CAB HEATER

Two (2) auxiliary heaters with 32,000 BTU/hr. each should be provided in the cab. The heaters should have a three (3) speed blower and temperature controls accessible to the driver and officer. There should also be louvers located below the rear facing seat riser and below the driver and officer positions for airflow.

The heaters should be mounted, one (1) within each rear facing seat riser.

AIR CONDITIONING

A high-performance, customized air conditioning system should be furnished inside the cab and crew cab. A 19.10 cubic inch compressor should be installed on the engine.

The air conditioning system should be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test should be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of four (4) hours.

A roof-mounted condenser that meets and exceeds the performance specification should be installed on the cab roof. Mounting the condenser below the cab or body would reduce the performance of the system and should not be acceptable. An evaporator unit that meets and exceeds the performance specification should be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator should include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit should be provided with adjustable air outlets strategically located to direct air flow to the driver, officer and crew cab area.

All hose used should be class 1 type to reduce moisture ingression into the air conditioning system.

The air conditioner refrigerant should be R-134A and should be installed by a certified technician.

A single electronic control panel should control the air conditioner. For ease of operation, the control panel should include variable adjustment for temperature and fan control and be conveniently located on the dash in clear view of the driver. The control panel should include robust knobs for both fan speed and temperature adjustment. The housing protecting the air conditioning unit in the center of the cab will be painted black to match the roof.

GRAB HANDLE

A grab handle should be mounted on the lower portion of the driver's side cab entrance to assist in entering the cab. The grab handle should be securely mounted to the post area between the door and steering wheel column.

A long grab handle should be mounted on the dashboard in front of the officer.

GLOVE BOX

A glove box with a drop-down door should be installed in the front dash panel in front of the officer position. The top part should be flat for an MDT mount.

ENGINE COMPARTMENT LIGHT

An engine compartment light should be installed under the engine hood, of which the switch is an integral part. Light should have a .125" diameter weep hole in its lens to prevent moisture retention.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there should be a door on the engine tunnel, inside the crew cab. The door should be on the rear wall of the engine tunnel, on the vertical surface, flush with the wall of the engine tunnel.

The engine oil dipstick should allow for checking only. The transmission dipstick should allow for both checking and filling. An additional tube should be provided for filling the engine oil.

The door should have a rubber seal for thermal and acoustic insulation. One (1) flush latch should be provided on the access door.

SEATING CAPACITY

The seating capacity in the cab should be five (5).

DRIVER SEAT

A seat should be provided in the cab for the driver. The seat design should be a cam action type, with air suspension. For increased convenience, the seat should include a manual control to adjust the horizontal position. The manual horizontal

control should be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat should have an adjustable reclining back. The seat back should be a high back style with side bolster pads for maximum support. The seat should be furnished with a three (3) point, shoulder type seat belt. The seat belt tongue should be stored at waist position for quick application by the seat occupant. The seat belt receptacle should be provided on a cable conveniently nested next to the seat cushion, providing easy accessibility. The seat belt should be furnished with dual automatic retractors that should provide ease of operation in the normal seating position.

OFFICER SEAT

A seat should be provided in the cab for the passenger. The seat should be a fixed type, with no suspension. To ensure safe operation, the seat should be equipped with seat belt sensors in the seat cushion and belt receptacle that should activate an alarm indicating a seat is occupied but not buckled.

The seat back should be an SCBA back style with 5 degree fixed recline angle. The SCBA cavity should be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity should be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat should be furnished with a three (3)-point, shoulder type seat belt. The seat belt tongue should be stored at waist position for quick application by the seat occupant. The seat belt receptacle should be provided on a cable conveniently nested next to the seat cushion, providing easy accessibility. The seat belt should be furnished with dual automatic retractors that should provide ease of operation in the normal seating position.

RADIO COMPARTMENT

A radio compartment should be provided under the officer's seat.

The inside compartment dimensions should be approximately 14.50" deep x 14.50" across x 9.00" high.

Access to this compartment should be through a side door that hinges downward. Door should be secured with a flush locking latch.

The compartment should be constructed of smooth aluminum and painted to match the cab interior.

FORWARD FACING CENTER SEATS

There should be three (3) forward facing seats provided at the center position in the crew cab. To ensure safe operation, the seats should be equipped with seat

belt sensors in the seat cushion and belt receptacle that should activate an alarm indicating a seat is occupied but not buckled.

The seat back should be an SCBA style with 90-degree back. The SCBA cavity should be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity should be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seats should be furnished with three (3) point shoulder type seat belts. The seat belt tongue should be stored at waist position for quick application by the seat occupant. The seat belt receptacle should be provided on a cable conveniently nested next to the seat cushion providing easy accessibility. The seat belts should be furnished with dual automatic retractors that should provide ease of operation in the normal seating position.

SEAT UPHOLSTERY

All Seats need to be of a heavy duty upholstery material should be maroon/ black.

SCBA HOLDERS

All SCBA type seats in the cab should have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket should include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp should constrain the SCBA bottle in the seat and should exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident should not be acceptable.

There should be a quantity of four (4) Smart Dock Gen II hands free SCBA holders that are compatible to the SCBA units specified in this document.

PASSENGER SAFETY SYSTEMS

The cab shall be equipped with the following passenger safety systems.

- Seat Belts
  All seating positions in the cab and crew cab should have red seat belts. Seat belt receptacle extensions for driver and officer should be provided. **(No Exception)**
- Seat Belt Monitoring System
  A seat belt monitoring system (SBMS) should be provided. The SBMS should be capable of monitoring up to ten (10) seat positions indicating the status of each seat position with a green or red LED indicator as follows:

  Driver Seat:

Seat Occupied	Buckled	Green
No Occupant	Unbuckled	Not Illuminated

The driver seat should not include an occupant sensor. The display indication for the driver seat should illuminate red any time the parking brake is released and the driver seat belt is not buckled.

All Other Seats:

Seat Occupied	Buckled	Green
Seat Occupied	Unbuckled	Red
No Occupant	Buckled	Red
No Occupant	Unbuckled	Not Illuminated

Alarm:
The SBMS should include an audible alarm that should be activated when a red illumination condition exists and the parking brake is released, or a red illumination condition exists and the transmission is not in park.

- Shoulder Harness Height Adjustment
  All seating positions furnished with three (3) point shoulder type seat belts should include a height adjustment. This adjustment should optimize the belts effectiveness and comfort for the seated firefighter.

- Supplemental Restraint System (SRS)
  The cab shall be equipped with a Supplemental Restraint System (SRS) comprised of air bags installed around the interior of the cab per the manufacturer's specification.

- Helmet Holder
  There should be One (1) Zico UHH-1 helmet holder bracket(s) provided in the cab. The brackets should provide quick access and secure storage of the helmet(s). The bracket location(s) shall be determined at time of final inspection.

CAB INTERIOR LIGHTING

Auxiliary lights should be provided in the cab and consisting of:

Two (2) Weldon, Model 8081, red/clear dome light located, one (1) on the officer side and one (1) on the driver side, controlled by the following:

- Clear forward light controlled by the door switch and the lens switch.
- Red rearward light controlled by the lens switch.

Two (2) Adjustable Map Lights: With switches mounted on the cab ceiling.

CREW CAB INTERIOR LIGHTING

There should be two (2) Weldon, Model 8081-0000-13, incandescent dome lights with grey bezels installed in the crew cab located one (1) each side, controlled by the following:

- The forward, clear light should be controlled by the door switch and the lens switch.
- The rear, red light should be controlled by the lens switch only.

A courtesy light shall be provided at each door opening, controlled by automatic door switches.

CAB INSTRUMENTATION

The cab instrument panel should include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. A label adjacent to each item should identify the function of the instrument panel controls and switches. Actuation of the headlight switch should illuminate the labels in low light conditions. Telltale indicator lamps should not be illuminated unless necessary. The cab instruments and controls should be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.

GAUGES

The gauge panel should include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:

- Voltmeter Gauge (volts):
  - Low volts (11.8 VDC)
  - Amber telltale light on indicator light display with steady tone alarm
  - High volts (15.5 VDC)
  - Amber telltale light on indicator light display with steady tone alarm
- Engine Tachometer (RPM)
- Speedometer (MPH)
- Fuel Level Gauge (Empty - Full in fractions):
  - Low fuel (1/8 full)
  - Amber telltale light on indicator light display with steady tone alarm
- Engine Oil Pressure Gauge (PSI):
  - Low oil pressure to activate engine warning lights and alarms
  - Red telltale light on indicator light display with steady tone alarm
- Front Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm
  - Red telltale light on indicator light display with steady tone alarm
- Rear Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm

- Red telltale light on indicator light display with steady tone alarm

- Transmission Oil Temperature Gauge (Fahrenheit):
  - High transmission oil temperature activates warning lights and alarm
  - Amber telltale light on indicator light display with steady tone alarm

- Engine Coolant Temperature Gauge (Fahrenheit):
  - High engine temperature activates an engine warning light and alarms
  - Red telltale light on indicator light display with steady tone alarm

- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
  - Low fluid (1/8 full)
  - Amber telltale light on indicator light display

OFFICER SIDE SPEEDOMETER

A Class I digital display speedometer should be provided on the officer side overhead position.

THERMAL IMAGING CAMERA

There should be two (2) MSA Evolution 6000 Plus Model # 10145951 thermal imaging cameras with two (2) Evolution 600 vehicle kit charging bases Model # 10145771 mounted in the cab area (item listed in loose equipment). Final layout location details should be discussed at the preconstruction conference.

GAS METER

There should be one (1) Multi RAE Lite gas meter with charging base mounted in the cab on the officer side (item listed in loose equipment). There should be a power outlet provided. Final layout location details should be discussed ate preconstruction conference.

INDICATOR LAMPS

The following telltale indicator lamps should be located on the instrument panel in clear view of the driver to promote safety. The indicator lamps should be "dead-front" design that is only visible when active. The colored indicator lights should have descriptive text or symbols.

The following amber telltale lamps should be present:

- Low coolant
- Traccntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Air rest (air restriction)
- Driver door open
- Passenger door open
- DPF (engine diesel particulate filter regeneration)

- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- Trans temp (transmission temperature)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)
- The following red telltale lamps should be present:
- Parking brake
- Stop engine

The following green telltale lamps should be present:

- Left turn
- Right turn
- Battery on
- Ignition
- Aux brake (auxiliary brake engaged) (where applicable)

The following blue telltale lamps should be present:

- High beam

ALARMS

A steady audible tone alarm should be provided whenever a warning message is present.

INDICATOR LAMP AND ALARM PROVE-OUT

A system should be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms should perform prove-out when the ignition switch is held in the up position for three (3) to five (5) seconds to ensure proper performance.

CONTROL SWITCHES

The following switches and controls should be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches should have backlit labels for low light applications.

Headlight/Parking Light Switch: A three (3)-position maintained rocker switch should be provided. The first switch position should deactivate all parking and headlights. The second switch position should activate the parking lights. The third switch should activate the headlights.

Panel Backlighting Intensity Control Switch: A variable voltage control switch should be provided. The switch moved in the up direction increases the panel

backlighting intensity to a maximum and the switch moved in a down direction decreases the panel backlighting intensity to a minimum level.

Ignition Switch: A three (3)-position maintained/momentary rocker switch should be provided. The first switch position should deactivate vehicle ignition. The second switch position should activate vehicle ignition. The third momentary position should perform prove-out on the telltale indicators and alarms when the ignition switch is held in the up position for three (3) to five (5) seconds to ensure proper performance. A green indicator lamp is activated with vehicle ignition.

Engine Start Switch: A two (2)-position momentary rocker switch should be provided. The first switch position is the default switch position. The second switch position should activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

Hazard Switch: Incorporated into the steering column.

Heater and Defroster Controls: Multi-position per manufacturer’s installation.

Turn Signal Arm: A self-canceling turn signal with high beam headlight controls.

Windshield Wiper Control: Should have high, low, and intermittent modes.

Parking Brake Control: An air actuated push/pull park brake control.

Chassis Horn Control: Activation of the chassis horn control should be provided through the center of the steering wheel.

CUSTOM SWITCH PANELS

The cab instrumentation design should allow for emergency lighting and other switches to be located within easy reach of the operator for maximum safe operations. There should be positions for up to three (3) switch panels in the overhead console on the driver's side, up to five (5) switch panels in the engine tunnel console, and up to three (3) switch panels in the overhead console on the officer's side. All switches have backlit labels for low light applications.

High Idle Engagement Switch: A maintained rocker switch with integral indicator lamp should be provided. The switch should activate and deactivate the high idle function. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch should indicate when the high idle function is engaged.

"Ok To Engage High Idle" Indicator Lamp: A green indicator light should be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

Diesel Particulate Filter Regeneration Switch (where applicable).

Diesel Particulate Filter Regeneration Inhibit Switch (where applicable).

DIAGNOSTIC PANEL

A diagnostic panel should be accessible while standing on the ground and should be located inside the driver's side door, left of the steering column. The diagnostic panel should allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches should allow engine and ABS systems to provide blink codes should a problem exist. The diagnostic panel should include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Engine diagnostic switch (blink codes flashed on check engine telltale indicator)
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light (electronic) should be provided.

CAB LOCK INDICATOR

Red indicator light on the cab dash that indicates whenever the cab locks are not fully engaged.

"DO NOT MOVE APPARATUS" INDICATOR

A red LED indicator beacon, located in the driving compartment, should be illuminated automatically per the current NFPA requirements. The light should be labeled "Do Not Move Apparatus If Light Is On".

The same circuit that activates the Do Not Move Apparatus indicator should activate a steady tone alarm when the parking brake is released.

OPEN DOOR INDICATOR LIGHT

Two (2) red indicator lights should be provided and located in clear view of the driver, warning of an open passenger or equipment compartment door.

One (1) light should indicate status of doors on the driver's side of the vehicle and the other light should indicate the status of the passenger side and rear compartment doors.

SWITCH PANELS

The built-in emergency light switch panel should have a master switch plus individual switches for selective control. The switch panel should be located in the "overhead" position above the windshield on the driver's side to allow for easy access. Switches should be rocker type with an indicator light, of which is an integral part of the switch.

WIPER CONTROL

Wiper control should consist of a two (2)-speed individual windshield wiper control with intermittent feature and windshield washer controls. The control should also have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

SPARE CIRCUIT

There should be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires should have the following features:

- The positive wire should be connected directly to the battery power.
- The negative wire should be connected to ground.
- Wires should be protected to 15 Amps at 12 volts DC.
- Power and ground should terminate officer side instrument panel for laptop computer.
- Termination should be with 15 AMP, power point plug with rubber cover.

Wires should be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There should be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires should have the following features:

- The positive wire should be connected directly to the battery switched power.
- The negative wire should be connected to ground.
- Wires should be protected to 15 Amps at 12 volts DC.
- Power and ground should terminate to engine tunnel for radios.
- Termination should be with heat shrinkable butt splicing.

Wires should be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

VEHICLE DATA RECORDER

A vehicle data recorder (VDR) should be provided. The VDR should be capable of reading and storing vehicle information. The VDR should be capable of operating in a voltage range from 8VDC to 16VDC. The VDR should not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR should continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A CD provided with the apparatus should include the programming to download the information from the VDR. A USB cable can be used to connect the VDR to a laptop to retrieve required information.

The vehicle data recorder should be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position (7-12 Seating Capacity)
- Seat Belt Buckled Status - Yes/No by Position (7-12 Seating Capacity)
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

INTERCOM SYSTEM

A Fire-Com, Model 5400D, single radio interface intercom system should be provided. The driver and captain should have a wireless headset charging drop and base station. Headset jacks should be located for the three (3) crew cab positions, at the forward facing seats and one (1) located in the rescue box. Final location will be determined at the pre-construction conference.

The wireless base station should have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following components should be supplied with this system:

- One (1) 5400D Intercom unit
- One (1) Multi-channel wireless radio base station (Driver and Captain))

- Three (3) HM-10 Headset modules (3 Crew)
- All necessary cords and wiring.

RADIO AND RADIO INTERFACE CABLE

The body builder should supply and install the required radio and radio interface cable before delivery of the vehicle. The radio equipment to be used by the customer should be Motorola XTL-5000.

HEADSET, UNDER HELMET, INTERCOM ONLY

There should be Three (3) Firecom model UH-54 under helmet, intercom only headset(s) provided Crew Cab Seating Positions.

Each headset should feature:

- Coiled cord with rugged angled plug
- Noise cancelling electric microphone with wind muff
- Flex boom rotates 180 degrees for left or right dress
- Detent-volume control
- Liquid foam ear seals
- Microphone on/off button

HEADSET ONLY, WIRELESS, UNDER HELMET, RADIO TRANSMIT

There should be two (2) Firecom Model UHW-505 under helmet, wireless, radio transmit headset(s) provided. A 12-volt charging pigtail with plug should be provided Driver and Captain Positions.

Each headset should feature:

- Noise cancelling electric microphone
- Flex boom rotates 180 degrees for left or right dress
- Detent-volume control
- Liquid foam ear seals
- Red Radio Push To Talk button
- Typical fire scene range is 300-500 feet
- Digital encoding for secured communications
- Rechargeable lithium ion battery, 500 cycles minimum
- Eight (8) to ten (10) hours talk time, three (3) hour charge time

HEADSET HANGERS

There should be six (6) headset hanger/s installed for the intercom system. The hanger/s should be installed each seating position and the location in the rescue box.

RADIO ANTENNA MOUNT

An antenna-mounting base, Model MATM, with 17 feet of coax cable and weatherproof cap should be provided for a two (2)-way radio.

The mount should be located on the cab roof just to the rear of the officer seat.

The cable should be routed to the seat box on the officer side with enough cable for customer to route to the instrument panel if needed.

Note: There will be one (1) radio antenna mount.

CELL/PCS/LTE/WI-FI ANTENNA

There should be one (1) AP-Cell/PCS/LTE/Wi-Fi Antenna. Threaded Bolt Mount in large teardrop housing.15 feet RG-58U coax with TNC connector on Wi- Fi Color Black. Part number AP-CW-Q-S11-BL.

ELECTRICAL POWER CONTROL SYSTEM

A compartment should be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment should contain circuit protection devices and power control devices. Power and signal protection and control components should be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

Serviceable components should be readily accessible.

Circuit protection devices, which conform to SAE standard, should be utilized to protect each circuit. All circuit protection devices should be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers should be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. PTO power circuits should be protected by Type III manual reset non-cycling circuit breakers conforming to SAE J553 or J258 which remain open until manually reset. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 should be utilized to protect electronic equipment.

Power control relays and solenoids should have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.

Visual status indicators should be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical should be used.

VOLTAGE MONITOR SYSTEM

A voltage monitor system should be provided to indicate the status of each battery system connected to the vehicles electrical load. The monitor system should provide visual and audio warning when the system voltage is above or below optimum levels.

POWER AND GROUND STUDS

A 12-volt power stud and a grounding stud should be provided in the electrical component compartment for two-way radio equipment.

EMI/RFI PROTECTION

The electrical system proposed should include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components should be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed should have the ability to operate in the electromagnetic environment typically found in fire ground operations. The Contractor should be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

EMI/RFI susceptibility should be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system should be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing should be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.

ELECTRICAL HARNESSING INSTALLATION

To ensure rugged dependability, all 12-volt wiring harnesses installed by the apparatus Manufacturer should conform to the following specifications:

SAE J1128 - Low tension primary cable
SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
SAE J163 - Low tension wiring and cable terminals and splice clips
SAE J2202 - Heavy duty wiring systems for on-highway trucks
NFPA 1901 - Standard for automotive fire apparatus
FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses
SAE J1939 - Serial communications protocol
SAE J2030 - Heavy-duty electrical connector performance standard
SAE J2223 - Connections for on board vehicle electrical wiring harnesses
NEC - National Electrical Code
SAE J561 - Electrical terminals - Eyelet and spade type
SAE J928 - Electrical terminals - Pin and receptacle type A

Wiring should be run in loom where exposed, and have grommets or other edge protection where wires pass through metal. Automatic reset circuit breakers should be provided which conform to SAE standards. Wiring should be color, function and number coded. Wire colors should be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple

wires and uses a single wire color for all wires should not be allowed. Function and number codes should be continuously imprinted on all wiring harness conductors at 2.00" intervals. All wiring installed between the cab and into doors should be enclosed within an expandable rubber boot to protect the wiring. Exterior exposed wire connectors should be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment should be installed utilizing the following guidelines:

1. All wire ends not placed into connectors should be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap should not be allowed. All holes made in the roof should be caulked with silicon. Large fender washers, liberally caulked, should be used when fastening equipment to the underside of the cab roof. Any electrical component that is installed in an exposed area should be mounted in a manner that should not allow moisture to accumulate in it. Exposed area should be defined as any location outside of the cab or body. For low cost of ownership, electrical components designed to be removed for maintenance should be quickly accessible. For ease of use, a coil of wire should be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work. Corrosion preventative compound should be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections should require this compound in the plug to prevent corrosion and for easy separation of the plug. Any lights containing non-waterproof sockets in a weather-exposed area should have corrosion preventative compound added to the socket terminal area. All electrical terminals in exposed areas should have DOW 1890 protective Coating applied completely over the metal portion of the terminal. Rubber coated metal clamps should be used to support wire harnessing and battery cables routed along the chassis frame rails. Heat shields should be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust should be protected by a heat shield.
2. All braided wire harnesses should have a permanent label attached for easy identification of the harness part number and fabrication date.

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus Manufacturer should conform to the following requirements:

SAE J1127 - Battery Cable
SAE J561 - Electrical terminals, eyelets and spade type
SAE J562 - Nonmetallic loom
SAE J836A - Automotive metallurgical joining
SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring
NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing should be installed utilizing the following guidelines:

1. All battery cables and battery harnesses should have a permanent label attached for easy identification of the harness part number and fabrication date. Splices should not be allowed on battery cables or battery cable harnesses. For ease of identification and simplified use, battery cables should be color coded. All positive battery cables should be red in color or wrapped in red loom the entire length of the cable. All negative battery cables should be black in color. For ease of identification, all positive battery cable isolated studs throughout the cab and chassis should be red in color.

   For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus should be coated to prevent corrosion.

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus should be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding should not be allowed. All lights and reflectors, required to comply with Federal Vehicle Safety Standard #108, should be furnished. Rear identification lights should be recessed mounted for protection. Lights and wiring mounted in rear bulkheads should be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test should be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests should be recorded and provided to the purchaser at time of delivery.

CAB SWITCHING INSTALLATION

All emergency light switches should be mounted on a separate panel installed in the cab. A master warning light switch and individual switches should be provided to allow pre-selection of emergency lights. The light switches should be rocker type with an internal indicator light to show when switch is energized. All switches should be properly identified and mounted in a removable panel for ease in servicing. Identification of the switches should be done by either printing or etching on the switch panel. The switches and identification should be illuminated.

BATTERY SYSTEM

Five (5) 12 volt, batteries that include the following features should be provided:
- 950 CCA (cold cranking Amps)
- 170 reserve capacity
- High cycle

- Maintenance free
- Group 31
- Rating of 4750 CCA at 0 degrees Fahrenheit
- 1020 minutes of reserve capacity
- Threaded posts

BATTERY SYSTEM

A single starting system should be provided.

An ignition switch and starter button should be located on the instrument panel.

MASTER BATTERY SWITCH

A master battery switch, to activate the battery system, should be provided inside the cab within easy reach of the driver.

An indicator light should be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

Batteries should be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments should be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs should be of a non-corrosive material. All bolts and nuts should be stainless steel.

Heavy-duty battery cables should be used to provide maximum power to the electrical system. Cables should be color-coded.

Battery terminal connections should be coated with anti-corrosion compound. Battery solenoid terminal connections should be encapsulated with semi-permanent rubberized compound.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers should be installed on the bottom of the driver's side battery box. This should provide for easy jumper cable access.

BATTERY CHARGER

A Kussmaul Autocharge 12 HO, 091-170-12 battery charger should be provided. A display bar graph, indicating the state of charge, should be provided.

The charger should have a maximum output of 20 Amps and a fully automatic regulation.

The battery charger should be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

Battery charger should be located in the crew cab seat riser.

The battery charger indicator should be located behind the driver's door on the outside of the cab.

AUTO EJECT SHORELINE

There should be one (1) shoreline receptacle provided to operate the 120-volt circuits on the truck without the use of the generator.

The shoreline receptacle (s) should be provided with a NEMA 5-20, 120-volt, 20 AMP, straight blade plug and red cover.

The shoreline should be connected to Kussmaul.

A mating connector body should also be supplied with the loose equipment.

The shoreline receptacle should be located on the driver side of cab, above wheel.

STAINLESS STEEL BATTERY TRAYS

Stainless steel battery trays should be provided for the batteries to sit in.

ALTERNATOR

A Leece-Neville, model 4890JB or Delco Remy®, model 55SI alternator should be provided. It should have a rated output current of 320 Amps, as measured by SAE method J56. The alternator should feature an integral, self-diagnostic regulator and rectifier. The alternator should be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGEMENT

A Kussmaul electronic load management (ELM) system should be provided that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

The ELM should monitor the vehicle's voltage while at the scene (parking brake applied). It should sequentially shut down individual electrical loads when the system voltage drops below a preset value. Five (5) separate electrical loads should be controlled by the load manager. The ELM should sequentially re-energize electrical loads as the system voltage recovers.

The (ELM) also includes sequencer function for the five (5) managed loads and two (2) additional.

EXTERIOR LIGHTING

Exterior lighting should meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal.

Front headlights should be halogen, rectangular shape, one (1) pair mounted in each front trim housing.

The LED directional lights should wrap-around on the outside corners of the trim housing. The headlight and LED directional lights should be in the same assembly.

Five (5) LED clearance and marker lights should be installed across the leading edge of the cab.

REAR ID/MARKER DOT LIGHTING

There should be one (1) Truck-Lite Model 15050R three (3) LED light kit used as identification lights located at the rear of the apparatus per the following:
- As close as practical to the vertical Centerline.
- Centers spaced not less than six (6) inches or more than twelve (12) inches apart.
- Red in color.
- All at the same height.

There should be two (2) Ri-Tar LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:
- To indicate the overall width of the vehicle.
- One (1) each side of the vertical centerline.
- As near the top as practical.
- Red in color.
- To be visible from the rear.

There should be two (2) Ri-Tar LED lights installed on the side of the apparatus as close to the rear as practical per the following:
- To indicate the overall length of the vehicle.
- One (1) each side of the vertical centerline.
- As near the top as practical.
- Red in color.
- To be visible from the side.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

The rear stop/tail and directional lighting should consist of the following:

Two (2) Whelen, Model 60R00BRR, red LED stop/tail lights.

Two (2) Whelen, Model 60A00TAR, amber LED populated arrow turn lights.

These lights should be installed at the rear of the truck in a polished housing.

Four (4) red reflectors should be provided.

A license plate bracket should be mounted at the rear in a highly visible location where it does not interfere with other equipment. An LED light should illuminate the license plate.

Two (2) Whelen, Model: 60J000CU backup lights should be provided.

LIGHTING BEZEL
Two (2) Whelen, model CAST4V, four (4) light aluminum housings should be provided for mounting four (4) Whelen 600 lights.

BACK-UP ALARM
A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse should be provided. The device should sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

WARNING LIGHT CONNECTIONS
All of the warning lights should include Deutsch, Model: DT two (2) position connectors.

LIGHT, INTERMEDIATE
There should be one (1) pair, of Truck-Lite, Model: 60115Y, amber, LED, turn signal, marker lights furnished, one (1) each side, horizontally in the rear fender panel.

A stainless steel trim should be included with this installation.

PERIMETER SCENE LIGHTS, CAB
There should be a Truck-Lite, model 60, grommet mount weatherproof light provided for each cab door. Lighting should be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which should be activated automatically when the exit doors are opened and by the same means as the body perimeter lights.

The lighting should be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.

PERIMETER SCENE LIGHTS, BODY

There should be a total of four (4) Truck-Lite, model 60, grommet mount, weatherproof lights provided on the apparatus. Two (2) lights should be provided under the rear step area and two (2) lights should be provided under the pump panel running boards. The lights should be spaced one (1) each side of apparatus and have a clear lens. The perimeter scene lights should be activated by a switch in the cab.

The lighting should be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.

STEP LIGHTS

Four (4) Ri-Tar, Model M27HW2 Super LED, step lights should be provided. One (1) step light should be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard. These step lights should be actuated with the pump panel light switch.

All other steps on the apparatus should be illuminated per the current edition of NFPA 1901.

SCENE LIGHTS

There should be three (3) Whelen Pioneer PCP2 light head (12-volt) LED combination spotlight and floodlights light(s) with chrome flange installed at: (1) pair at the rear of the apparatus upper, (one each side one) One(1) pair right side body bulkhead upper, (one forward/one rear).One (1) pair left side body bulkhead upper,(one forward/one rear).

A control for the light(s) selected above should be the following:

A switch at the driver's side switch panel.
A switch at the pump panel.

These lights may be load managed when the parking brake is set.

FRONT SCENE

There will be one (1) Whelen Pioneer PCP2, black light head (12 volt) LED combination spotlight and floodlight(s) provided on the front visor, centered.

The light(s) will be controlled by a switch at the driver's side switch panel.

These lights may be load managed when the parking brake is applied.

WATER TANK

Booster tank should have a capacity of 200-250 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.

Tank joints and seams should be nitrogen welded inside and out.

Tank should be baffled in accordance with NFPA Bulletin 1901 requirements.

Baffles should have vent openings at both the top and bottom to permit movement of air and water between compartments.

Tank top should be sufficiently supported to keep it rigid during fast filling conditions.

Mounting system should be approved by the tank Manufacturer.

Fill tower should be constructed of .50" polypropylene and should be a minimum of 8.00" wide x 14.00" long.

Fill tower should be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe should be installed and auxiliary vent should be provided inside the tank to release trapped air when fill the tank while the truck is on an incline.

TOW BAR

A tow bar should be installed under the tailboard at center of truck.

Tow bar assembly should be constructed of .38" structural angle. When force is applied to the bar, it should be transmitted to the frame rail.

Tow bar assembly should be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb., or a 20,000 lb. straight horizontal pull in line with the centerline of the vehicle.

Tow bar design should have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.

HEAVY DUTY RESCUE CONSTRUCTION COMPARTMENTATION

Body and compartments should be fabricated of galvanneal steel or a comparable material.

Side compartments should be an integral assembly with the rear fenders.

Circular fender liners should be provided for prevention of rust pockets and ease of maintenance.

Compartment flooring should be 12-gauge and of the sweep out design, with the floor higher than the compartment door lip.

The compartment door opening should be framed by flanging the edges in 1.75" and bending out again .75" to form an angle.

Drip protection should be provided above the doors by means of bright aluminum extrusion, formed bright aluminum tread plate, or polished stainless steel.

The top of the compartment should be covered with bright aluminum tread plate rolled over the edges on the front, rear, and outward side. These covers should have the corners TIG welded.

Side compartment covers should be separate from the compartment tops.

Front facing compartment walls should be covered with bright aluminum tread plate.

All screws and bolts which protrude into a compartment should have acorn nuts on the ends to prevent injury.

UNDER COATING BODY AND PUMP SUBSTRUCTURE

The body substructures should be treated with an under coating material to provide resistance to corrosion and chemicals.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas should comply with the required average slip resistance of the current NFPA standards.

LOUVERS

Louvers should be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they should be formed into the metal and not added to the compartment as a separate plate.

ROOF CONSTRUCTION

The roof shall be integral with the body construction. The roof shall be flat and constructed of bright aluminum treadplate and supported by 2.00" square 0.125" wall tubing welded in place approximately 12.00" on center. The roof shall be further reinforced with 2.00" square gussets welded approximately every 48.00" The roof perimeters shall be constructed of a 3.00" radius with an integral drip molding.

BODY AND COMPARTMENT SUPPORT

The substructure for the body shall not be integral with the body but shall be a separate assembly.

The bottom of each lower compartment floor shall be supported by an under slung steel angle grid that shall be bolted to the chassis frame rails with grade 8

bolts in order to transfer major stress to the chassis frame and not through the body. The complete substructure shall be washed, primed and finish painted before being bolted to the chassis frame. A rubber coating shall be applied over the painted under slung support structure for an additional corrosion barrier.

A rubber liner shall be placed on top of the chassis frame rails. The liner shall be used to prevent metal to metal contact where the body stringer rests on the chassis frame rails.

The compartment floors shall be bolted to the under slung substructure and the body shall be secured to the chassis frame by a minimum of four (4) tie-down assemblies. The tie-downs shall be easily accessible so that the body may be removed.

APPARATUS LENGTH

The apparatus should not exceed 36’ 6” from front bumper to rear of apparatus.

ROLL-UP DOOR, SIDE COMPARTMENTS

There shall be eight (8) compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body.

Door(s) shall be constructed using 1.00" extruded double wall aluminum slats which shall feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats shall be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain shall be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats shall be mounted in reusable slat shoes with positive snap-lock securement.

Each slat shall incorporate weather tight recessed dual durometer seals. One (1) fin shall be designed to locate the seal within the extrusion. The second fin shall serve as a wiping seal which shall also allow for compression to prevent water ingression.

The doors shall be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

Bottom panel flange of roll-up door shall be equipped with two (2) cut-outs to allow for easier access with gloved hands.

A stainless steel lift bar to be provided for opening the door and located at the bottom of each door with latches on the outer extrusion of the door frame. A

ledge to be supplied over lift bar for additional area to aid in closing the door. The lift bar shall be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers shall include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded roll-up door wear components shall be constructed of Type 6 nylon.

Each roll-up door shall have a 3.00" diameter balancer/tensioner drum to assist in lifting the door. A garage door style shall not acceptable.

The header for the roll-up door assembly shall not exceed 4.00".

A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.

EXTERIOR COMPARTMENTS

The doors shall be able to withstand years of rugged service and wear. For this reason, the compartment door design, metal thickness and attachments shall be strictly adhered to. The compartment shall be constructed of fabricated of galvanneal steel or a comparable material, including all interior panels, floor and sides. The assemblies shall be held inside fixtures while being welded.

Compartment flooring shall be of the sweep out design with the floor higher than the compartment door frame. All compartments shall be supported on top, rear and bottom. The rear wall of each exterior compartment shall be welded to the cross sills. Drip protection shall be provided over all door openings with an integral roof extrusion or aluminum extrusion.

WHEEL WELLS

The rear fenders shall be an integral part of the body sides and compartments.

The inside of the fender shall be fitted with a full circular inner fender liner. All screws and bolts, which protrude into a compartment, shall have acorn nuts attached.

LEFT SIDE COMPARTMENTS

First Compartment

The first compartment shall be located behind the cab. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Second Compartment

The second compartment shall be located behind the first compartments. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Third Compartment (over wheel)
Located above the rear wheels shall be a compartment. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Fourth Compartment
The fourth compartment shall be located behind the third compartment and behind the rear wheels. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

RIGHT SIDE COMPARTMENTS

First Compartment
The first compartment shall be located behind the cab. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Second Compartment
The second compartment shall be located behind the first compartments. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Third Compartment (over wheel)
Located above the rear wheels shall be a compartment. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

Fourth Compartment
The fourth compartment shall be located behind the third compartment and behind the rear wheels. The compartment shall be provided with a roll-up door. The compartment dimensions should be as wide and high as allowed per builder specifications.

REAR ENTRANCE TO BODY INTERIOR
The vendor should list the interior area width from wall to wall. The vendor shall list the interior counter height over the exterior compartmentation.

A double rear entrance door shall be provided at the rear of the body. The rear door shall be with a full box pan design for strength and appearance.

Both the interior and exterior door handles shall be flush mounted, chrome plated, paddle type door handles.

The outside handle shall be located near the bottom of the door allowing a person of average height to open the door while standing on the ground. The inside door handle shall be located approximately half way up the door in the center.

A chrome plated grab handle shall be horizontally mounted on the inside of the access door to aid in closing.

The door hinge shall be full length polished stainless steel with a stainless steel pin. The hinge shall be attached to the body and door with stainless steel screws or bolts. (Hinges that are welded on shall not be accepted.) Isolation tape shall be furnished between the hinge and the door jam.

The rear door shall be furnished with polished stainless steel door grabbers to hold the door in an open position. Both doors should be water tight for the walk-in rescue unit.

Each door shall be provided with one (1) window that slide up/down. Both windows shall have tinted automotive safety glass. A sliding screen shall be located at the top of both doors.

INTERIOR WALKWAY

Interior walkway sides shall be lined with bright .12" thick aluminum treadplate from the rear entrance door to the front wall.

Ceiling and side walls of the crew/cargo interior shall be covered with treadplate aluminum. The material on the ceiling and side walls shall be secured with screws and therefore shall be removable for access to wiring should the need arise. The interior horizontal surfaces (counter top) over the exterior compartments shall be covered with .75" thick plywood and .125" brushed aluminum. A 1.00" high lip shall be provided at the counter top edge to prevent objects from sliding off the surface.

INTERIOR FLOOR CONSTRUCTION

The interior floor shall be constructed of a plate welded to the cross sills of the substructure with a .75" exterior polyurethane overlay.

The final floor material shall be .188" bright aluminum treadplate installed on top of the subfloor with a 4.00" vertical kick plate on each side. The floor shall be installed so that a total seal is provided that shall allow a complete wash down without any moisture penetrating the poly subfloor.

The diamonds shall be aligned between sheets.

INTERMEDIATE STEPS

Three (3) steps shall be provided at the rear of the body for stepping into and out of the body interior in an easy manner.

1) The tailboard step shall be constructed of bright aluminum treadplate and shall be full width of the walkway by 20.00" deep.

2) The intermediate step shall be constructed of bright aluminum treadplate. The step shall be full width of the walkway and 10.00" deep.

LED INTERIOR CEILING LIGHTS

There shall be four (4) Durolumen, Model R03852, 12-volt DC LED light(s) with white and red LEDs and a frosted lens in a painted recessed mount in the ceiling of the body interior.

The lights shall be equally distributed throughout the body interior providing light to the center walkway.

SWITCH FOR CEILING LIGHTS

Switching shall be provided for each colored portion of the Durolumen light(s). There shall be two (2) provided for the red portion and two (2) provided for the clear portion of the lights. Each of these shall be configured in a three-way switch configuration.

The first set of switches shall be located forward.

The second set of switches shall be located by the rear door.

In addition to the rocker switches the clear portion of the Durolumen lights shall also be activated when the access door is opened at each entry to the body.

FOLD UP BENCH SEAT WITH BACKREST

A bench seat assembly shall be provided on the interior. The seat assembly shall consist of three (3) separate seating sections provided on top of an aluminum treadplate storage compartment.

The storage compartment shall be as long as possible to accommodate the three (3) seating sections. The rear 6.00" of the storage compartment shall be raised approximately 3.00" higher than the rest of the compartment along the entire length of the seat assembly.

Each seating section shall be sized for two (2) individuals. The seat upholstery shall be made of a heavy duty material. Each two (2) person seat section shall consist of a deep cushion. All seat cushions shall be mounted in front of the raised section of the storage compartment. A backrest shall be provided for each seat location. Each backrest shall be constructed of the same material as the seat cushion.

The cushion bottoms shall be covered with brushed stainless steel for a pleasant appearance when the seat is in the up position.

An automatic retractor type seat belt shall be furnished with each seat. An extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.

The bench seat assembly shall be located driver side in the body interior.

AIR CONDITIONER

(2) two wall mounted air conditioners with heating capability, shall be provided as specified by the customer's request.

The unit shall be mounted within the interior of the enclosed body with thermostat.

Each air conditioner shall have cooling capacity of 33,000 BTUH. The heater shall have heating capacity of 46,000 BTUH. The unit shall be piped to the chassis radiator/cooling system with silicone heater hoses. The final location of air conditioner to be determined at the pre-construction conference.

UPPER WALL CABINET

The body interior shall be furnished with upper wall cabinet(s). The cabinet(s) shall be 24.00" deep, extending from the counter top to the ceiling, with a maximum width of 48.00". The cabinet(s) shall be constructed of .75" plywood and covered with 5052-H32 .12 aluminum on both sides, bottom and backwall. The aluminum shall have a satin finish, and complement the interior trim.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern shall be provided at the cabinet door opening. The nylon webbing shall be permanently mounted at the bottom of the cabinet. The top and sides shall be secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

There shall be six (6) cabinet(s) located three (3) each side. just ahead of the side window, two (2) right next to each other on the driver's/ passenger side and one (1) forward of the window of the interior(each side).

UPPER WALL CABINET WITH FIXED SHELVE IN MIDDLE

The body interior shall be furnished with an upper wall cabinet. The cabinet shall be 24.00" deep, extending from the counter top to the ceiling, with a maximum width of 90.00" wide. The cabinet shall be constructed of 0.75" plywood and covered with aluminum on both sides, bottom and back wall. The aluminum shall have a satin finish, and complement the interior trim.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern shall be provided at the cabinet door opening. The nylon webbing shall be permanently mounted at the bottom of the cabinet. The top and sides shall be

secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

There shall be one (1) cabinet(s) located forward at the front of the walk-in area of the interior.

INTERIOR ENCLOSURE FOR REEL

An enclosure shall be provided to house the part of the recessed reel that protrudes above the interior counter top.

Enclosure shall be constructed from high density Kortron wood material, which is resistant to warping and is covered on both sides with a white plastic laminate. Enclosure door shall be provided with a vertical stainless steel hinge and a recessed lift and turn latch.

There shall be four (4) provided.

CEILING HANDRAIL

Mounted on the ceiling of the body interior shall be a rigidly mounted handrail. The handrail shall be an anodized aluminum extrusion with a ribbed design to provide a positive gripping surface.

There shall be one (1) provided.

full length of the walk way passenger side.

ESCAPE HATCH (non-see thru)

Escape hatch shall be provided in the body roof.

A 2.00" high lip shall be provided around the perimeter of the opening to prevent moisture from entering the body.

Hatch shall be fully welded in place on the body roof.

Hatch cover shall have a rubber gasket inside to prevent leakage.

Hatch cover shall be secured with two butterfly - style latches and shall have two pneumatic cylinders to hold it in the open position.

A "hatch open" indicator light shall be provided in the cab.

There shall be one (1) provided.

There shall be one (1) fold down step on the bench seat to gain access to the hatch.

INTERIOR PARTITION
The area over the countertop shall have unpainted .13" thick brushed aluminum vertical partition(s).

The partition(s) shall be located Centered in the compartment to the rear of the window on Driver's side wall.

A total quantity of one (1) vertical partition(s) shall be provided.

ADJUSTABLE SHELF IN CABINET
An adjustable shelf shall be provided inside an interior cabinet. The shelf shall be constructed of 0.188" thick aluminum with 2.00" high sides.

The shelf shall be as deep and as wide as required for the designated mounting location.

The shelf shall be secured within the cabinet by means of adjustable threaded fasteners. These fasteners shall slide in an extruded aluminum track to provide height adjustment.

The shelf and tracks shall be finished to match the cabinet it is mounted in.

A total of six (6) shall be provided and mounted in the cabinet(s) located one (1) in each interior storage compartment except the rear most compartment on the passenger's side over the hydraulic reels.

STORAGE RACK
A storage rack shall be provided under the bench seat for storage of one (1) 14' roof ladder, series 775A, one (1) Fresno series 701 12’ attic ladder and six (6) pike poles 12’ in length, four (4) 12’4”X4” (wood).

Construction shall be of 0.12" thick aluminum. Stainless steel slides shall be provided for the ladders.

A door shall be provided on the end of the bench seat for retrieval of the equipment from the rear.

SIDE WINDOW
A quantity two (2) slide-by style window(s) shall be provided.

The window shall measure 34.00" wide x 15.00" high and shall include screen.

Sliding window shall be provided with an escape feature. Window shall have a hinge at the top and two (2) inside latches at the bottom to allow the window to swing open. The windows shall be tinted.

BRUSHED STAINLESS STEEL ON BODY CORNERS
Each corner of body corners of the body shall be covered with brushed stainless steel. The stainless steel shall be fastened to the body extrusions with stainless steel screws. A total of two (2) pair shall be provided.

RUB RAIL
The side compartments shall be protected with a black 1.50" thick x 3.00" high plastic rub rail. Rubber spacers shall be included between the rubrail and the body.

Rubrails shall be fastened to the sides of the body with 0.50" stainless bolts and washers on a minimum of 12.00" centers.

Rubrails shall be tapered on each end of the body and run the full length.

The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

The intermediate rubrail shall be located above the body doors rain drip area.

The upper rubrail shall be located up high just below the roof extrusions.

BRUSHED STAINLESS ON REAR FENDER PANELS
The rear fender panel on each side of the truck shall be covered with brushed stainless steel. The stainless steel shall be fastened to the body panels with stainless steel screws.

ACCESS DOOR
A single pan access door with a locking D-handle latch shall be provided adjacent to the rear entry door inside the recess for the rear entrance.

The door shall allow personnel standing inside the rear entrance on the exterior of the body to access the area above the countertop on the interior of the body.

A total of two (2) door(s) shall be provided one on each side at rear.

REAR HITCH RECEIVER
A Class IV hitch receiver shall be installed under the body at the rear of the apparatus.

The hitch receiver shall be properly reinforced to provide a maximum rating of 10,000 lb. no-yield condition with a straight line pull (towing capacity) and a 1,000 lb. tongue weight when used with a weight distributing hitch assembly. The hitch receiver shall be tested to provide a 2:1 straight line pull no-yield safety factor over the maximum load rating of the hitch receiver.

A heavy-duty slide-in tube and ball assembly with retaining pin shall be included with the rear hitch receiver. This hitch receiver shall have power supplied to it for a Warn Winch.

Trailer Wiring
The trailer connection for the rear hitch receiver shall be a seven (7)-way flat blade recreational vehicle connector for trailer wiring compatible with electric brake systems, and a second connector with inverted ground meeting SAE J560 standards providing an auxiliary connection for warning devices.

SIDE HITCH RECEIVERS
There shall be one (1) hitch receiver installed through the body fender panel in front of the rear wheels on each side of the body. The hitch receivers shall be constructed of heavy steel tubing and reinforced to the apparatus framework.

Each receiver shall each be capable of retaining a portable winch with a rating of no more than 9,500 lb. Each receiver has been tested to provide a 2:1 straight line pull no-yield safety factor over the 9,500 lb. maximum load rating of the removable winch

Spring loaded stainless steel doors shall be provided on the exterior of the body to cover the ends of receivers in the fender area. Each door shall have a flush latch provided to prevent the door from opening while not in use. A stainless steel trim ring shall be provided to prevent damage to the exterior finish around the opening.

Access to each receiver pin shall be provided through the compartment ahead of the receiver and through the fender liner. A small hinged door shall be provided to cover the fender access in order to prevent debris from entering the area of the retaining pin. A rubber cover shall be provided to cover the access inside the forward compartment to prevent road dust from entering the compartment. This hitch receiver shall have power supplied to it for a Warn Winch.

TIE DOWN/ANCHOR, ROOF MOUNTED
(4) four chrome plated tie down eyes shall be provided on the roof of the body. Each tie down eye shall be rated for 3,000 lb. straight pull. Each tie down eye shall have an inside diameter of 2.00".

A total of two (2) pair(s) of tie down eyes shall be provided. The specific location of the tie down eyes shall be one (1) pair rearward on body roof as far to the rear as possible, one on each side of body, and one (1) pair forward on body roof, one on each side of body, spaced so that the wheel well hitch point is centered between two (2) tie downs on each side.

NFPA 1901, 2009 edition, section 15.12.2 requires that receivers or anchors installed at any location on the apparatus for use with rope operations shall be

designed and affixed to the apparatus to provide at least 9,000 lb. no-yield condition with a straight line pull. These tie downs/anchors are not rated for 9,000 lb no yield condition with a straight line pull. Per the customer's specifications and request of these tie downs, this apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

TOTE BOXES

Tool box(es) construction of .50" thick, UPF plastic with a cut out carrying handle on each end shall be provided.

The tool box(es) shall be held in place to prevent movement while the vehicle is in motion. There shall be a plastic edge provided at the front of the storage location providing a sliding surface for box removal.

The exterior box dimensions shall be to fit available space on adjustable shelves and on floor in Left Compartment # 4 rear of partitions and in front of air system bottles x 10" high. There shall be three (3) provided.

COMPARTMENT DIVIDER

A 0.12" thick aluminum vertical compartment divider shall be provided in Left Compartment #4, just rear of Light Mast enclosure. Notch will provide opening to run hydraulic hose from reel in rear of Compartment #4 to space between vertical dividers on either side of vertical light mast. Hose will be connected to hydraulic ram. The divider shall be secured in place with #10 self-tapping screws.

A 6.00" x 6.00" notch shall be provided in the divider. The notch shall be located on the top outside corner closest to the door of the compartment.

A total of one (1) divider(s) shall be provided.

UNDER BODY COMPARTMENT

Two compartments shall be provided under the body on the passenger's side and drivers side ahead of the rear wheels. The compartments shall be constructed of bright aluminum treadplate. The compartments shall be provided with a stainless steel drop down door with a "D" ring handle along with a strap or chain to keep the door from dropping down.

The inside dimensions of the compartments shall be 8.00" high x 23.50" deep, with a maximum width of 72.00" wide.

A total of two (2) under body compartments shall be provided passenger side and drivers side forward of body.

AIR BAG RACK

A rack for eight (8) air bag(s) shall be installed in a horizontal orientation within the Right Compartment #2 on top of tool box rear of partition.

The clear dimensions for each storage slot shall be for a Maxi Force Model 117, 8 bag set # 22-889117G2 air bags. Dimensions shall include fill nipple in corner. (The rack shall be fabricated of 0.125" aluminum, and shall be finished to match the compartment interior. Access to each air bag shall be provided through a semi-circle cutout in the leading edge of each slot. Nylon straps with hook and loop closures shall be provided to hold the air bags in the rack.

A 1.50" high lip shall be provided on all four (4) sides along the top of the air bag rack. One bag will need to stand up vertical from the floor.

STORAGE RACK FOR SPARE SCBA BOTTLES

A storage rack shall be provided in Left Compartment #3 over wheel on the left side to hold six (6) spare SCBA bottles. The rack shall be built to hold the bottles Stacked in groups of two. The rack shall be constructed of 0.12" aluminum. The rack shall be left unpainted Each storage slot shall angle to the rear of the rack in order to minimize the chances of the bottle falling out. A rubber bumper shall be provided on the rear wall of each slot to absorb the shock of the bottle being placed into position. Scuff tape material shall be applied to the inside of each slot to reduce scratching on the bottle.

The inside dimension of each bottle slot shall be 7.50" x 7.50" x 23” deep.

STORAGE MODULE FOR LITTLE GIANT LADDER

A storage module constructed of .12 aluminum shall be provided stored vertical in the Right Compartment # 2 between partitions forward of CTECH tool box and air bag rack and partition rear of adjustable shelves.

The rack shall store one (1) Model 17 Little Giant Ladder(s) in the folded position.

RECESS FOR REEL

The compartment top and hatch compartment bottom shall be modified to allow five (5) reel(s) to be recessed. A removable aluminum treadplate shelf shall be installed on the reel bracket providing additional storage above the reel that is accessible from the hatch compartment opening.

Locations (2) reels in Right Rear Compartment #4
- (1) reel in Right Front Compartment #1
- (1) reel in Left Rear Compartment #4
- (1) reel in Left Front Compartment #1

SLIDE OUT/TILT DOWN TRAY

There shall be one (1) Right Rear Compartment # 4 immediately under the top adjustable shelve to hold Hurst JL-QE hydraulic power supply model 375780000. The construction shall consist of 0.188" thick aluminum formed to provide a 2.00" high wall around the perimeter.

Corners shall be welded to provide a rigid unit. Spring loaded lock shall be provided on each side at the front of the tray. Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in both the stowed and extended positions. The vertical position of the tray within the compartment will be adjustable.

SLIDE OUT/TILT DOWN TRAY

There shall be one (1) Right Side Compartment # 1 below the electric reel. The construction shall consist of 0.188" thick aluminum formed to provide a 2.00" high wall around the perimeter. Corners shall be welded to provide a rigid unit. Spring loaded lock shall be provided on each side at the front of the tray.

Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in both the stowed and extended positions. The vertical position of the tray within the compartment will be adjustable.

ADJUSTABLE SHELVING

Compartments shall include shelving.

The construction shall consist of .188" thick aluminum formed to provide a 2.00" high wall around the perimeter.

Corners shall be welded to provide a rigid unit.

Shelving shall be secured within the compartment by means of adjustable threaded fasteners. These fasteners shall slide in an extruded aluminum track to provide height adjustment.

Load capacity shall be 400 pounds.

There shall be seven (7)
One (1) Right Side Compartment #4 under hydraulic reel (400 lb. capacity).
Two (2) Right Side Compartment #2 forward of Little Giant Ladder.
One (1) Left Side Compartment #3 over wheel forward of partitions.
One (1) Left Side Compartment #2 upper.

One (1) Left Side Compartment #2 middle.
One (1) Left Side Compartment #1 above the circuit breaker panel.

ADJUSTABLE SHELF, SPECIAL SIZE FOR TOTE BOXES

An adjustable shelf with a capacity of 500 lbs.) shall be provided. The shelf construction shall consist of 0.188 aluminum with 2.00" high sides along the entire perimeter of the shelf. The shelf shall be finished to match the compartment interior.

The shelf shall be a special size as specified by the customer with a maximum depth of no more than 24.00" deep.

The dimensions of the shelf shall be as wide as room allows and deep enough to clear the cascade air bottles, but with the standard gap between the outside edge of the shelves and the roll up door.

The shelf shall be infinitely adjustable by means of threaded fasteners that slide in an aluminum track.

A total of two (2) shall be provided.

The shelf(ves) shall be located in Left Side Compartment # 4 to the rear of the light mast and vertical divider.

SLIDE OUT TOOLBOARD

A slide out aluminum toolboard shall be provided.

It shall be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.

The board shall be mounted on an undermount - roller bearing type slide rated at 250lbs with a 100% safety factor.

The slide shall be mounted to a shelf type track to allow side adjustment of the toolboard.

The board shall have positive lock in the stowed and extended position.

There shall be two (2) provided.

two (2) in Left Side Compartment # 4 forward of partitions. There shall be a 5” tray at the bottom of each tool board on both sides.

SLIDE-OUT ADJUSTABLE
A sliding tray shall be provided.

The capacity rating shall be 500 lb. minimum in the extended position. The slide mechanisms shall have ball bearings for ease of operation and years of dependable service.

The tray shall be constructed of 0.188" thick aluminum formed to provide a 2.00" high wall around the perimeter. The tray shall be 25.00" deep inside the tray and shall be designed to be as wide as possible to fit in the specified mounting location.

Corners shall be welded to form a rigid unit.

An automatic lock shall be provided for both the in and out tray positions.

The lock trip mechanism shall be located at the front of the tray and shall be easily operated with a gloved hand.

Each tray shall be adjustable up and down within the compartment.

There shall be two (2) provided.

One (1) in Right Side Compartment #4 (below slide out/tilt down) and one (1) in the Right Side Compartment #1 (below the slide out/tilt down).

INVERTED SLIDE OUT TRAY
There shall be one (1) floor mounted and inverted, with a minimum capacity of 500 lbs. provided. Capacity rating shall be in the extended position. Tray shall be mounted as low as possible to the floor of the compartment.

Utility style tray with rollers shall be provided.

Tray location shall be Right Side Compartment # 3 forward of partition.

Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for it shall be located at the front of the tray for ease of use with a gloved hand.

TRANSVERSE EQUIPMENT STORAGE RACK
An equipment storage rack assembly shall be provided in a transverse body above frame rails in Left Compartment #1. The rack shall consist of storage for the following equipment:

There shall be three (3) storage troughs for storage of Stokes Basket and (2) two backboard and eight (8) storage tubes provided for storage of long equipment.

Each storage tube shall be a plastic tube with a maximum size of 6.00" diameter x 87.00" long. The specific size of each storage tube shall be There will be six (6) 2" tubes 70" in length and two (2) 5" tubes 70" in length forward upper above storage trough for RIT bag. Entire rack will be set back 4.0" from door opening except for Stokes which is transverse. The end of each storage tube shall be capped.

The basket will be stored flat and secured with a combination of footman loops and Velcro web straps and will be accessible from either side of the compartment. The size of the Stokes Basket area to be approx. 16” H x 25” W.

This will be sized for a Junkin JSA300 Stokes and other equipment stored in the Stokes Basket. The backboard access will be from either end of the rack if possible. A hook and loop will be provided on each end of the rack to keep the backboard in place. The dimensions of the backboard are 16”x72”x1.25”. The backboards could store flat or on end.

SCBA CYLINDER STORAGE (Double Bottle)
A total of one (1) SCBA cylinder compartments should be provided right side wheel well area. The SCBA cylinder compartment should be of adequate size to accommodate two (2) SCBA cylinders. Flooring should be rubber lined and be furnished with a drain hole. A stainless steel door with a chrome plated latch should be provided to contain the SCBA cylinders. A dielectric barrier should be provided between the door hinge, hinge fasteners and the body sheet metal.

REAR WALL, BODY MATERIAL
The rear wall shall be smooth and the same material as the body.

TOW EYES
Two (2) rear chrome plated tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the chassis frame rails. The inner and outer edges of the tow eyes shall be radiused.

DOOR GUARD
Eight (8) compartment doors shall include an L-shaped guard designed to protect the bottom and interior side of the roll-up door from damage when in the retracted position and contain any water spray while the door is being opened. The guard shall be fabricated from stainless steel and installed in all compartments.

PULL STRAP, DOORS
A pull strap shall be provided for a total of eight (8) compartment doors, located each body roll-up compartment door.

A hook and loop closure shall be mounted on the inside of each roll door. A second hook and loop closure shall be permanently mounted to the nearest inside body wall attaching to the strap. This shall allow the strap to be retained inside

the compartment while being closed and still allowing the door to open fully.

COMPARTMENT LIGHTING

There shall be eight (8) compartments with Amdor, Model AY-9220, white 12-volt DC LED compartment light strips. The lights shall be mounted with mechanical fasteners.

There shall be two (2) strip lights installed vertically in each compartment opening per the latest NFPA requirements.

The lights shall be activated when the battery switch is on and the respective compartment door is opened.

DRAWER ASSEMBLY

A slideout drawer assembly shall be installed in the Right Side Compartment #2 rearward of partition mounted on floor.

The clear dimensions starting at the top of the cabinet with the first drawer shall be 2.00" high x 21.00" deep. The clear dimensions of the second drawer shall be 2.00" high x 21.00" deep. The clear dimensions of the third drawer shall be 4.00" high x 21.00" deep. The clear dimensions of the fourth drawer shall be 6.00" high x 21.00" deep. Each drawer shall be the same width and not exceed 36.00".

The drawers shall have a capacity of 250 pounds.

The drawers shall be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames. The housing shall be 24.00" deep, and completely enclose the drawer.

A full-length aluminum extruded rail shall be provided at the top edge of each drawer. This rail shall act as the latching mechanism as well as the handle for each drawer.

There shall be a total of one (1) provided.

PARTITION, VERTICAL COMPARTMENT

Six (6) partitions shall be bolted in [Location, Partition, Vertical]. Each partition shall be the full vertical height of the compartment. Right Side Compartment # 2 (2ea.), #3 (1ea.) / Left Side Compartment# 4 (2 ea.), # 3 (1ea.)

BODY FENDER CROWNS

Stainless steel fender crowns shall be provided around the rear wheel openings. These fender crowns must be wide enough to prevent splashing onto the body from the specified tires.

A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering.

A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

REAR PULLOUT STEP

A pull-out and down (camper style) step shall be installed below the tailboard step. The step surface when pulled out shall lower 5.00" and shall extend out from its nested position under the tailboard reducing the stepping distance from the ground to the top of the tailboard step.

This step shall be 8.00" deep and designed to fit in the mounting location. The stepping surface shall be bright aluminum treadplate. Slotted side support pieces of the pull-out portion of step shall be made out of .25" steel plate.

The step shall be mounted [Location, driver's/passenger's/center] below the rear tailboard.

ELECTRONIC SIREN

A Power call 6 Adam, electronic siren should be provided.

ELECTRIC SIREN, LOCATION,

Siren head should be mounted overhead officer side.

SIREN CONTROL

The electronic siren should be controllable on the siren head and horn ring only. No foot switches should be required. In addition, it should be tied to the Parking Brake deactivating electronic siren.

The driver should have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

SPEAKER

There should be one (1) speaker provided. Each speaker should be a Feneix Triton Series Speaker, 200 watt. Each speaker should be connected to the siren amplifier.

The speaker(s) should be mounted in the grill.

MECHANICAL SIREN, (Auxiliary)

A Federal Q2B siren should be furnished. A siren brake button should be installed on the switch panel.

The control solenoid should be powered up after the emergency master switch is activated.

The mechanical siren should be mounted on the grill.

MECHANICAL SIREN SWITCHING
The mechanical siren should be actuated by two (2) foot switches, one (1) located driver side standard floor location, one (1) officer side passenger side should be mounted on the engine tunnel within easy reach of the officer.

INTERLOCK, ELECTRONIC SIREN
The electronic siren should be interlocked to shut off when the parking brake is set.

LIGHTBAR, CAB ROOF
There should be a 72.00"Whelen Freedom Model FN**QLED lightbar mounted on the cab roof.

The lightbar should include the following:
- Four (4) red flashing LED modules facing forward.
- Two (2) white flashing LED modules facing forward.
- Two (2) red flashing corner LED modules, one in each front corner.
- One (1) red flashing LED module facing the rear corner driver's side.
- One (1) red flashing LED module facing the rear corner officer's side.

All lenses should be clear.

There should be one (1) switch located in the cab on the switch panel to control this lightbar.

The white warning lights should be disabled when the parking brake is applied.

The two (2) red flashing LED modules facing forward may be load managed when the parking brake is applied.

WARNING LIGHTS (Cab Face)
Two (2) pair of Whelen model 60*00F*R LED lights should be installed on the cab face, above the headlights, mounted in a common bezel.

The outer LEDS should be required for NFPA and should meet or exceed the NFPA required light output for the front lower zone.

The color of these LEDs should be red Super LED/red lens.
The inner LEDs should be additional lighting.
The color of these lights should be red Super LED/red lens.
Both sets of lights should be activated by the same switch in the cab.

AIR HORN SYSTEM
Two (2) Grover air horns should be provided and located, in the front bumper, recessed one (1) each side of hose tray. The horn system should be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve should be installed in-line to prevent loss of air in the air brake system.

AIR HORN CONTROL
The air horns should be actuated by two (2) foot switches.

One (1) foot switch should be located on the officer's side passenger side on the engine tunnel within easy reach of the officer and one (1) foot switch should be located on the driver's side driver side standard location.

SIDE ZONE LOWER LIGHTING
Six (6) Whelen model 60*02F*R flashing super LED lights should be located at the following positions:

- Two (2) lights, one (1) each side on the bumper extension - red Super LED/red lens each side recessed into the bumper extension.
- Two (2) lights, rear of crew cab doors - red Super LED/rd lens each side.
- Two (2) lights, body wheel well - red Super LED/red lens each side.

The lights should be controlled by a lighted switch on the cab instrument panel. These lights should be installed with three (3) pairs of flange kits.

SIDE ZONE UPPER LIGHTING
Two (2) Whelen model 60*02F*R flashing super LED lights should be located at the following position: each side of the raise cab above the jump seat window.

SIDE WARNING LIGHTS
There will be (2) pairs of Whelen Model Strip-Lite, PS*00F*R LED lights provided on the of the truck, one (1) set centered under the # 2 compartment both sides and (1) one set centered under the # 4 compartment both sides. The color of the lights will be red. The lens color will be the same color as the LED’s. These lights will be activated with the side warning switch.

SIDE WARNING LIGHTS
There will be (1) pairs of Whelen Model Strip-Lite, PS*00F*R LED lights provided on the rear of the truck, centered on both sides. The color of the lights will be red. The lens color will be the same color as the LED’s. These lights will be activated with the side warning switch.

SIDE WARNING LIGHTS EACH SIDE
There shall be one (2) pair of flush mounted Whelen, Model 90**5F*R, flashing LED lights provided, forward and rear each side.

The lights shall be located, one (1) light each side forward on the upper part of the body.

The color of the lights shall be red Super LED/clear lens.

The lights shall be controlled by with the side warning switch.

These lights shall be installed with a flange.

SIDE WARNING LIGHTS
There shall be one (1) pair of flush mounted Whelen, Model 90**5F*R flashing LED lights provided.

The lights shall be located on one (1) each side of body upper middle centered between the two (2) front and rear Whelen 900 warning lights.

The color of the lights shall be two (2) split red/white Super LEDs/clear lens.

The lights shall be controlled by with the side warning switch.

These lights shall be installed with a flange.

REAR ZONE LOWER LIGHTING
There shall be two (2) Whelen®, Model 60*02F*R, red Super LED/clear lens lights located at the rear of the apparatus.

Each light shall be mounted in a housing.

There shall be a switch located in the cab on the switch panel to control the lights.

REAR AND SIDE UPPER ZONE WARNING LIGHTS
There shall be four (4) Whelen, Model 90**5F*R LED flashing warning lights provided with Whelen, Model 90FLANGC chrome flanges at the rear and side of the apparatus.

The rear upper light(s) on the driver's side to be red.
The rear lower light(s) on the driver's side to be amber.
The rear upper light(s) on the passenger's side to be red.
The rear lower light(s) on the passenger's side to be amber
The color of the lenses shall be clear.

There shall be a switch located in the cab on the switch panel to control the lights.

TRAFFIC DIRECTING LIGHT
There shall be one (1) Whelen®, Model TAL65, 36.01" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen, Model TACTLD1, control head shall be included with this installation.

The auxiliary warning mode shall be activated with the control head only.

This traffic directing light shall be surface mounted using screws and a bracket at the rear of the apparatus to the roof corner extrusion. The traffic directing light controller should be located within the switch panel in the dashboard. The controller should be within easy reach of the driver.

ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT

The following guidelines shall apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 3 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions.

All products shall be used only in the manner for which they have been listed.

Grounding

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding. An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single

conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

Operation
Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10.

Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.

Overcurrent protection
The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144.00" (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods
Fixed wiring systems shall be limited to the following:

Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)
or

Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition, the wiring shall be run as follows.

Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping

Separated from fuel lines by a minimum of 6.00" (152 mm) distance.

Electrical cord or conduit shall be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

Wiring Identification
All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing functions and wire size.

Wet Locations
All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location shall be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Locations
All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30.00" (762 mm) above the interior floor height.

All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.

Listing
All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.

Electrical System Testing
The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current NFPA 1901 Standard
The apparatus manufacturer shall perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test shall be witnessed and the results certified by an independent third-party certification organization.

The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard shall be applied to the low voltage electrical system during the operational test.

25kW SINGLE PHASE PTO GENERATOR
The apparatus shall be equipped with a complete electrical power system. The wiring and generator installation shall conform to the present National Electrical Code Standards of the National Fire Protection Association. The installation

shall be designed for continuous operation without overheating and undue stress on components.

The generator shall be a single phase, four (4)-wire, 25kW driven by a transmission "power takeoff" attached to the side of the transmission.

Generator performance shall meet the American National Standards Institute (ANSI) C84.1-1982 voltage requirement as utilized from the receptacle.

Generator shall have a built in automatic voltage control.

Generator shall have a NEMA MG21 rating.
- Continuous Duty Rating: 25,000 watts
- Phase: Single
- Nominal Cycles: 60 hertz
- Nominal Amp Rating: 104 at 240-volts
- Engine Speed at Engagement: Idle
- Engine Speed Engaged: 1100/1400 rpm range
- Generator RPM: 1800 rpm

The output of the generator shall be controlled by an electronic governor. The governor shall be programmed so the generator's output is at 60 hertz.

The main chassis transmission PTO shall power the generator. A stainless steel splash guard shall be installed to reduce the amount of road spray on this frame-mounted generator.

The generator shall be operable in the stationary mode with a shift control located inside the cab with an indicator light to note engagement. For safety, the automatic high idle shall be activated through interlocks only after the chassis parking brake control is in the park position, the generator PTO transmission has made a complete shift and the truck transmission is in neutral.

An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

To properly monitor the generator performance and load demands during operation, the generator shall be equipped with a full instrument and control package. This panel shall be mounted adjacent to the load center. The following instruments shall be installed in the panel:
- One (1) Voltmeter
- Two (2) Ammeters
- One (1) Frequency Meter
- One (1) Hour Meter
- One (1) "Power On" Green Indicator Light
- One (1) PTO Engagement Indicator Light

- Two (2) Fuse Holders: With two (2) amp fuses for gauge protection

The meter and indicators shall be installed near eye level in the compartment. Instruments shall be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used shall be accurate within +/- two (2) percent.

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type designed for mobile installations subject to vibration, moisture and severe continuous usage.

All electrical wiring from the load center shall be fine stranded copper S.O. type with a 600-volt jacket. The wire shall be sized to the load and circuit breaker rating. The wire size shall be ten (10)-gauge on 30 amp circuits, 12-gauge on 20 amp circuits and 14-gauge on 15 amp circuits. The S.O. cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access.

Any S.O. cord not run in an enclosed raceway or cable tray shall have an additional abrasion resistant covering.

The main load center shall have circuit breakers rated to load demand.

Individual breakers shall be provided for all receptacles to isolate a tripped breaker from affecting any other on-line equipment.

GENERATOR LOCATION
The generator shall be mounted under the body between the frame rails.

GENERATOR START
There shall be a switch provided on the cab instrument panel to engage the generator.

GENERATOR REMOTE START
There shall be a generator remote start/stop switch with indicator light located Left Side Compartment # 1.

CIRCUIT BREAKER PANEL
The circuit breaker panel shall be located in Left Side Compartment #1.

GENERATOR SPLASH GUARD
A stainless steel splash guard shall be installed to reduce the amount of road spray on a frame mounted PTO generator.

VERTICAL LIGHT TOWER

There shall be one (1) Will-Burt, Model IWM 7-25-5400 M, vertical light tower installed in the rearward half, driver's side of the body.

This tower shall extend 25' and includes six (6) 900W 240V lightheads.

The controller shall be a panel mount controller located near the AC system breaker box.

This tower shall be connected to the Do Not Move Truck Indicator in the cab.

ELECTRIC CORD REEL

Furnished with the AC electrical system shall be a Hannay, Series 1600, cord reel wired for a four (4) conductor cord. The reel shall be provided with a 12-volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The push button switch shall be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.

The exterior finish of the reel(s) shall be painted #269 gray from the reel manufacturer.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the cord from being wound on the reel.

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.

A total of two (2) cord reels shall be provided one (1) Right Side Compartment #1 and one (1) Left Side Compartment #3.

CORD

Provided for electric distribution shall be two (2) lengths, one (1) for each reel, of 200 feet of yellow 10/4 electrical cord. A Hubbell L14-20, 20-amp, 120/240 volt, twist lock connector body shall be installed on the end of the cord.

PORTABLE JUNCTION BOX

There shall be four (4) 120 vac 20-amp straight blade receptacles provided in a portable junction box. The box shall be wired for two (2) separate circuits of two (2) receptacles each.

The junction box shall be of weatherproof construction and have flip up lids lined with soft neoprene rubber at each outlet opening.

A Hubbell L14-20, 20-amp, 120/240 volt, twist lock connector body.

A total of two (2) shall be provided.

POWER OUTLET STRIP

There shall be two (2) Sentrex Model M620BZLS 18.00" long x 2.00" wide x 1.75" thick, surge protected receptacle strip(s) with six (6) 20 amp 120-volt AC straight blade receptacles provided One (1) each side in the window area towards the rear of the truck.

The strip(s) selected shall be powered from the onboard generator through a receptacle located adjacent to the strip(s).

There shall be a label installed near the strip(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency
- Power Source

120 VOLT RECEPTACLE

There shall be [Qty. to be determined at pre-construction], 20-amp 120-volt AC three (3) wire straight blade duplex receptacle(s) installed [Location, Receptacle(s)]. The NEMA configuration for the receptacles shall be 5-20R.

The receptacle(s) shall be powered from the shoreline inlet.

There shall be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency
- Power Source

240 VOLT RECEPTACLE

There shall be [Qty. to be determined at pre-construction], 30-amp 240-volt AC three (3) wire twist lock receptacle(s) with waterproof flip up cover(s) installed in Right Compartment #4 center back wall between hydraulic reels for Hurst Quad Power Unit. The NEMA configuration for the receptacles shall be L6-30R.

The receptacle(s) shall be powered from the [AC Power Source].

There shall be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Ratting (amps)

- Phase
- Frequency
- Power Source

RECEPTACLE SWITCH WITH RED COVER AND GREEN AC INDICATOR

There shall be one (1) weather resistant toggle switch with red cover installed forward wall of P1 compartment. This switch shall control the AC power to the 30 amp 240-volt AC receptacle Right Compartment #4, receptacle for Hurst Power Unit.

There shall be an AC powered green indicator light located near this switch. The indicator shall indicate when the receptacle has AC power available.

CASCADE STORAGE VESSELS

The breathing air cascade system shall meet NFPA requirements for a compressed air system that is used to provide air for human respiration, using self-contained breathing apparatus. It shall be capable of operating in a range of ambient temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius), with a relative humidity up to and including 100 percent.

All flexible hose shall be installed without excessive bending and to prevent cuts, abrasions, and excessive temperatures. Also, the hose shall be installed to allow its replacement without requiring removal of major vehicle components or vehicle-mounted equipment.

The breathing air system shall be easy to maintain, with an arrangement of components that allows easy inspections, servicing, calibration, and adjustments without removing the components.

All major components in the breathing air system, including accessories, shall be clearly identified and labeled. Appropriate caution and warning labels shall be affixed where necessary to allow the equipment to be safely operated and maintained.

Two (2) complete manuals that document the operation and maintenance of the system shall be provided.

The complete breathing air system shall be tested for leaks and for proper functioning prior to its delivery.

The cascade system storage cylinders shall consist of the following major components:
- Two (2) Storage Vessels
- Two (2) Storage Vessel Shutoff Valves

- Two (2) Storage Vessel Relief Devices
- One (1) Storage Vessel Mounting Rack
- Two (2) Inlet/outlet Connections

The cascade storage vessels shall be ASME 6000 psi. These vessels shall be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods. Each vessel shall hold 510.50 cubic feet of air at rated pressure, for a total system volume of 1,021 cubic feet. Each vessel shall be equipped with a UN shutoff valve and a built in, burst-disc pressure relief device.

The storage vessels shall be installed in Left Compartment #4, rear corner lined on back wall of compartment.

BREATHING AIR SYSTEM GENERAL DESIGN

The air system shall meet the requirements for a compressed air system used to provide air suitable for human respiration with self-contained breathing apparatus.

If a compressor or booster system is supplied it shall be capable of operating in a range of ambient temperature between 32 degree Fahrenheit and 100 degrees Fahrenheit (0 Celsius and 43 degrees Celsius).

If a cascade system is supplied it shall be capable of operating in a range of ambient temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius).

The air system shall be capable of withstanding storage temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius) without damage.

The air system in general shall be capable of being stored and operated in environments with relative humidity up to and including 100 percent.

All flexible hose shall be installed in such a manner as to prevent cuts, abrasions, exposure to damage, excessive temperatures, damage from loose equipment and excessive bending. The hose shall be installed in a manner that permits removal of hose without removal of major vehicle components or vehicle mounted equipment.

The air system design shall provide for maintainability by ensuring that the arrangement of the components shall allow easy inspections, servicing, calibration and adjustment without removing the components.

All major components in the air system, including accessories, shall be clearly identified and labeled. Appropriate caution and warning labels shall be affixed where necessary to allow the equipment to be safely operated and adjusted.
Two complete manuals shall be provided that document the operation and maintenance of the system.

If a compressor is supplied, the temperature of the compressed air shall not exceed 25-degrees Fahrenheit (14-degrees Celsius) above ambient temperatures when measured at the discharge nozzle of the compressor after cooler. Audible and visual alarms, automatic shutdown and prevention of automatic restart shall occur if any of the following conditions exist: low oil level or low oil pressure, high discharge air temperature, more than 24 ppm of moisture in the purification system outlet and if the carbon monoxide level exceeds 10 ppm.

The purification system shall be capable of producing the required air quality for a minimum of 50 hours with inlet at 80 degrees Fahrenheit (27 degrees Celsius) at saturation.

Low pressure breathing air supply from reels or in remote locations shall be provided with a low air pressure audible alarm warning device when the air volume is at or below 20 percent.

The complete breathing air system shall be tested prior to delivery.

The fire department shall receive training with this breathing air system. A demonstration of the operation of the breathing air system shall be provided at the factory.

This demonstration shall include the following:
- Review of all safety items in the system
- Review of all component manuals
- A walk around review of all the components that make up the system
- A hands-on system demonstration of each functional item in the system, during which proper use of the system components shall be described
- A demonstration of how to properly shutdown and maintain the system

BREATHING AIR CONTROL PANEL

A custom air control panel shall be provided. The panel shall be made of a glare resistant black powder coated steel. The panel shall be hinged to allow access to the back of the panel for ease of service.

A custom painted aluminum box shall house and protect the components behind the air control panel.

All tubing behind the panel shall be stainless steel with the exception of the supply lines from the air storage and the flexible fill whips.

All stainless steel tubing and flexible hose shall have a four to one (4:1) safety factor.
All identification tags shall be recessed in chrome plated bezels.

One (1) valve and one (1) gauge for each of the two (2) storage banks provided on the air control panel. If there is more than one (1) storage cylinder for each bank, two (2) cylinders shall be connected to each bank starting with the first bank.

The system shall be regulated with one (1) breathing air supplied gauge, one (1) 0-4500 psi regulator, and one (1) regulated pressure gauge. One (1) additional 0-400 psi low pressure, high flow rate regulated circuit with gauge to be provided.

A pressure relief valve preset, at no more than ten percent above the regulator output setting, shall be provided. A warning label that specifies the appropriate pressure regulator settings and the pressure relief setting shall be placed adjacent to the regulator.

An SCBA fill valve shall control the air flowing into the SCBA cylinders shall be supplied on the air control panel. An SCBA fill gauge shall be supplied on the air control panel, to view the pressure in the SCBA cylinders during filling. This valve and gauge shall be used to manually vary the SCBA fill rates in accordance with the SCBA manufacturer's recommendations.

A refill fitting shall be supplied on the face of the air control panel, to allow the refilling of the system storage cylinders from an external source. With 6000 psi storage cylinders, a male CGA-677 fitting shall be provided, and with 4500 and 5000 psi storage cylinders, a male CGA-347 fitting shall be provided.

When applicable, an auxiliary regulated outlet shall be supplied to allow an air sample to be taken at the face of the air control panel. The outlet shall be a female CGA-347 fitting with dust cap.

The panel shall be configured without a booster pump.
The panel shall be configured without a compressor connection.
The panel shall be located in Left Compartments #1A towards the front of the truck.

HIGH PRESSURE AIR OUTLET FROM CASCADE SYSTEM
There shall be a high pressure outlet supplied on the air control panel.

Air regulation for the outlet shall be controlled by a hand adjustable regulator on the face of the air control panel and shall be limited to 6000 psi output. A device to prevent inadvertent or accidental adjustment of the regulator shall be provided.

A label that warns against setting the regulator to an excessive pressure shall be installed next to the regulator.
A pressure relief valve preset at not over ten (10) percent above the regulator output setting shall be provided. A warning label shall be installed next to the regulator to indicated the relief valve setting.

A male CGA 677 connector with dust cap and a soft seat screw valve shall be provided to control the supply of air.

A total quantity of one (1) shall be provided.

AIR REEL FOR TOOLS

Two (2) air reels installed in compartments, one (1) located in the upper left hand corner of compartment Right Side Compartment #3 of the vertical partition and one (1) recessed into the top Left Side Compartment # 4 both reels complete with hose and fittings. The hose reel shall be rated for 300 psi working pressure and shall be capable of holding 200' of low pressure 0.38" inside dimension hose.

The hose reel shall include the following features:

- The side discs shall have rolled edges and concentric reinforcing ribs
- The drum shall be roll formed with a full length weld
- A bearing shall support the axle at each end of the reel to provide smooth rotation and eliminate weight on the swivel joint
- The reel axle shall be the full length of the reel
- The swivel joint inlet shall permit the reel to rotate freely while connected

The reel shall be equipped with a 12-volt DC electric rewind motor operated by a push button switch which is guarded to prevent accidental operation. The switch shall be installed at a height not to exceed 72.00" above the operator's standing position. A properly rated circuit breaker shall be provided to protect the rewind motor against short circuit and overload. A 12-volt fuse shall protect the rewind control circuit.

The exterior finish of the reel(s) shall be painted #269 gray from the reel manufacturer.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the end of the hose from being wound onto the reel.

The low pressure reel shall be equipped with 200' of Goodyear "Insta-Grip", Heavy-Duty, Blue number 9273 hose. The hose shall be continuous with no unions. The hose end shall have a female Hansen quick disconnect. To monitor the pressure in the supply line, a gauge and valve shall be provided at the air control panel.

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate utility air, the operating pressure, total hose length and hose size (inside dimension).

CONDUIT FOR HYDRAULIC HOSE
The hydraulic connection hose shall be protected in a length of 1.50" ID plastic conduit. This conduit shall be designed for ease of hose replacement without the removal of the conduit.

The conduit shall be located between Left Side Compartment #4 and Right Side Compartment #4 where hydraulic pump will be located in Right Side Compartment #4 and plumbed to hydraulic reel in Left Side Compartment #4.

The number of conduit tubes to be provided shall be one (1) length.

COUPLING KIT
A Streamline Technology connection shall be provided to connect the hose to the hydraulic tools.

The connection shall allow a hydraulic twin line hose to be converted into a single connection.

A total of three (3) female connection fitting(s) shall be provided.

HYDRAULIC HOSE
A 4'-12' section of Hurst Low Pressure twin hose shall be provided.

The hose shall be one (1) continuous length, without unions, and equipped with a quick disconnect fittings on one end and swivel fittings at the opposite end.

The colors of the hose shall be:
Hose 1 blue/blue
Hose 2 orange/orange
A total of two (2) shall be provided.

The hose shall be located from Hurst Tri-Mode power unit in the Right Side Compartment # 4 to hydraulic reel in Right Side Compartment #4.

HYDRAULIC HOSE
A 20'-30' section of Hurst Low Pressure twin hose shall be provided.

The hose shall be one (1) continuous length, without unions, and equipped with a quick disconnect fittings on one end and swivel fittings at the opposite end.

The colors of the hose shall be:
Hose 1 green/green

A total of one (1) shall be provided.

The hose shall be located from Hurst Tri-Mode power unit in compartment Right Side Compartment #4to hydraulic reel in compartment Left Side Compartment # 4.

ROLLER GUIDE

There shall be a three (3) sided roller assembly to aid in the payout of the cord reel from the reel. The top is open to drop in the cord. The guide shall be installed on the compartment wall located One (1) in Left Side Compartment #4 and Two (2) in Right Side Compartment #4. The guide shall have a positive locking hinge to fold the guide against the wall in the stored position. There shall be one (1) for each reel for a total of three (3) reels.

HYDRAULIC REEL WITH 100' OF HOSE

A Hurst hydraulic hose reel shall be provided. The reel shall be operated by a 12-volt electric motor controlled by a rewind switch. The motor shall be protected by a circuit breaker and the rewind circuit shall be protected by a fuse. The switch shall be guarded to prevent accidental operation and installed at a height not to exceed 72 inches above the operators standing position.

The reel shall be provided with 100' of Hurst twin hydraulic hose. Surfaces where the hose comes in contact with the reel roller shall be constructed of stainless steel, chrome plated steel or plastic. A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop and rewind switch shall also be provided.

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate maximum flow pressure and total hose length.

The color of the hose shall be:
Blue/blue
Orange/orange
Green/green
A total quantity of three (3) reels shall be provided.

The reel(s) shall be located one (1) as high as possible in Left Side Compartment #4 to the rear, and two (2) recessed into the top of Right Side Compartment #4 as far apart as possible.

RUB RAIL

Bottom edge of the side compartments should be trimmed with a bright aluminum extruded rub rail.

Trim should be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails should not be an integral part of the body construction, which allows replacement in the event of damage.

FIRE PUMP & PUMP COMPARTMENT

A single stage 1000gpm fire pump should be located in the Left Side Compartment #1. It should be a fabricated assembly of steel tubing, angles and channels which supports the fire pump. Please describe in detail your pump house mounting. A test document on designed should be provided with bid. Pump compartment, pump, plumbing and gauge panels should be removable from the chassis in a single assembly.

Pump should be the Class "A" type.
Pump should deliver the percentage of rated discharges at the pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure.
- 100% of rated capacity at 165 psi net pump pressure.
- 70% of rated capacity at 200 psi net pump pressure.
- 50% of rated capacity at 250 psi net pump pressure.

Entire pump and both suction and discharge passages should be hydrostatically tested to a pressure of 500 psi.

Pump should be fully tested at the pump Manufacturer's factory to the performance requirements as outlined by the current NFPA 1901 standards and should be free from objectionable pulsation and vibration.

Pump body and related parts should be of fine grain, alloy cast iron with a minimum tensile strength of 30,000 psi (2041.2 bar).

All moving parts in contact with water should be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron should not be acceptable.

PUMP TRANSMISSION SPLIT SHAFT OR PTO DRIVEN

The drive unit should be cast and completely manufactured and tested at the pump Manufacturer's factory. The drive unit should be designed with ample lubrication reserve to maintain the proper operating temperature.

The gearbox drive shafts should be of heat treated chrome nickel steel. least. They should be designed to withstand the full torque of the engine in both road and pump operating conditions. All gears, both drive and pump, should be of the highest quality, electric furnace, chrome nickel steel. Bores should be ground to size and teeth integrated, crown-shaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut spur design should be provided to eliminate all possible end thrust.

The pump ratio should be selected by the apparatus Manufacturer to provide the maximum performance with the engine and transmission selected. Three (3) green warning lights should be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two (2) lights should be located in the truck driving compartment and one (1) light on pump operator's panel, adjacent to the throttle control.

TRANSMISSION LOCK-UP

The direct gear transmission lock-up for the fire pump operation should engage automatically when the pump shift control, in the cab, is activated.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system should be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger should be cylindrical type and should be a separate unit. It should be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger should be plumbed to the master drain valve.

INTAKE RELIEF VALVE

An Elkhart relief valve should be installed on the suction side of the pump preset at 125 psig.

Relief valve should have a working range of 75 psig to 250 psig.

PRESSURE CONTROLLER

A Fire Research, INCONTROL Model TGA300 pressure governor should be provided.

A pressure transducer should be installed in the water discharge manifold on the pump.

The display panel should be located at the pump operator's panel.

PRIMING PUMP

Priming pump should be a positive displacement vane type, electrically driven, and conforming to standards outlined in NFPA pamphlet #1901.

One (1) priming control should both open the priming valve and start the priming motor.

A fluid tank should automatically lubricate and seal the sliding rotor vanes, when the pump operates.

Priming reservoir should be translucent to indicate the proper fluid level.

RECIRCULATING LINE
A .50" diameter recirculating line, from the pump to the water tank, should be furnished with a control installed at the pump operator's control panel.

PUMP DRAIN LOCATION
The master pump drain should be located so that the drain or the drain lines do not interfere with Access to the pump transmission fill plug.

RADIATOR REFILL, w/RESTRICTION
An emergency radiator refill line should be provided, with the control accessible through a stainless steel door on the passenger side pump panel. A .063" restriction should be provided in this line to prevent pressurizing the radiator.

THERMAL RELIEF VALVE
A thermal protection device should be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump.

The thermal protection device should be set to relieve water when the temperature of the pump water exceeds 120o F (49 C).

The thermal protection device should include an indicator light and audible buzzer.

The thermal protection device should have 1-1/4 inch NPT threads for easy adaptability to existing pump discharge openings. The discharge line should be 3/8-inch diameter tubing vented to atmosphere or back to the booster tank.

The thermal protection device should have a hydrostatic test rating of 600 PSIG (41 BAR).

PUMP MANUALS
Two (2) pump manuals from the pump Manufacturer should be furnished in compact disc format with the apparatus. Manuals should cover pump operation, maintenance, and parts.

PLUMBING
All inlet and outlet plumbing, 3.00" and smaller, should be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. If hose is used, it must have a minimum burst rating of 1,000 psi and be equipped with high pressure couplings. Larger inlets and outlets should be threaded or welded black iron pipe. Small diameter secondary plumbing such as drain lines should be stainless steel, brass or hose.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping should be equipped with victaulic or rubber couplings.

All lines to drain through either a master drain valve or should be equipped with individual drain valves. All individual drain lines for discharges should be extended with a hose to drain below the chassis frame.

All water carrying gauge lines should be of flexible polypropylene tubing.

MAIN PUMP INLETS

A 6.00" pump manifold inlet should be provided on the left side of the vehicle. The suction inlets should include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

The main pump inlets should have National Standard Threads with a long handle chrome cap.

The cap should be the vented type design to automatically relieve stored pressure in the line when disconnected.

SHORT SUCTION TUBE

The suction tubes on the midship pump should have "short" suction tubes to allow for installation of adapters without excessive overhang.

VALVES

All ball valves should be Akron Brass in-line valves. The Akron valves should be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves should have a ten (10) year warranty.

INLET (Left side)

On the left side pump panel should be one (1) 2.50" auxiliary suction, terminating in 2.50" National Standard Hose Thread. The auxiliary suction should be provided with a strainer, chrome swivel and plug.

INLET CONTROL

Control for the side auxiliary inlet(s) should be located at the inlet valve.

TANK TO PUMP

The booster tank should be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line should run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling should be included in this line to prevent damage from vibration or chassis flexing.

A check valve should be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL
A 1.50" combination tank refill and pump re-circulation line should be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

DISCHARGE OUTLETS (Left Side)
There should be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter.

DISCHARGE OUTLET CROSS LAYS
There should be two (2) 1.50" discharge outlet plumbed to the cross lays in Left Compartment A1. The (2) two compartments should have a capacity of 200' of 1.75" double jacket cotton-polyester hose and 1.50" nozzle. The other compartment should have a capacity of 200' of 1.75" double jacket cotton-polyester hose and 1.50" nozzle.

The discharge should have a 90-degree swivel and terminate with 1.50" NHT.

Plumbing should consist of 2.00" piping with a 2.00" full flow ball valve controlled at the pump operator's panel.

Automatic drains should be provided at all low points in the plumbing.

DISCHARGE CAPS
Chrome plated, rocker lug, caps with chains should be furnished for all discharge outlets.

The caps should be the vented type design to automatically relieve stored pressure in the line when disconnected.

OUTLET BLEEDER VALVE
A .75" bleeder valve should be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves should be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles should be chrome plated and provide a visual indication of valve position. The swing handle should provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders should be located at the bottom of the pump panel. They should be properly labeled identifying the

discharge they are plumbed in to. The water discharged by the bleeders should be routed below the chassis frame rails.

ELBOWS, LEFT SIDE OUTLETS

The 2.50" discharge outlets, located on the left side pump panel, should be furnished with a 2.50"(F) National Standard hose thread x 2.50"(M) National Standard hose thread, chrome plated, 45-degree elbow.

The elbow should be the vented type design to automatically relieve stored pressure in the line when disconnected.

DISCHARGE OUTLET CONTROLS

The discharge outlets should incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism should indicate the position of the valve.

PUMP CONTROL PANELS (Side Control)

All pump controls and gauges should be located at the left (driver's) side of the apparatus and properly marked.

The pump panel on the left (driver's) side is removable with lift and turn type fasteners.

The identification tag for each valve control should be recessed in the face of the tee handle.

All discharge outlets should have color coded identification tags, with each discharge having its own unique color. Color coding should include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges should be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge.

PUMP COMPARTMENT LIGHT

A pump compartment light should be provided inside the pump enclosure and accessible through a door on the pump panel.

A .125" weep hole should be provided in each light lens, preventing moisture retention.

Engine monitoring graduated LED indicators should be incorporated with the pressure controller.

COLOR CODED GARNISH RINGS
A color coded garnish ring should be furnished around each driver side and front discharge outlet. The color of the ring should match the color on the discharge control and should consist of a vinyl overlay on the stainless steel garnish ring.

SPECIAL LABEL
There should be one (1) special label/s provided and installed. The Tank fill and Recirculation tag should read "Tank Fill" only.

COLOR CODED NAME TAGS
There should be four (4) outlet discharges with color coded name tags. These tags should be used for labeling the discharge pressure gauges, controls, outlets and drains.

GAUGES, VACUUM and PRESSURE
The pump vacuum and pressure gauges should be silicone filled and manufactured by Class 1, Inc.

The pump pressure and vacuum gauges should be installed adjacent to each other at the pump operator's control panel.

Test port connections should be provided at the pump operator's panel. One should be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They should have 0.25 in. standard pipe thread connections and polished stainless steel plugs. They should be marked with a label.

PRESSURE GAUGES
The individual "line" pressure gauges for the discharges should be interlube filled and manufactured by Class 1.

The gauges should be a minimum of 3.50" in diameter and should have white faces with black lettering.

Gauges should be compound type with a vacuum/pressure range of 30.00"-0-600#.

The individual pressure gauge should be installed as close to the outlet control as practical.

WATER LEVEL GAUGE
A Fire Research, Model WL2000 series electric water level gauge should be provided on the operator's panel, that registers water level by means of 9 LEDs. They should be at 1/8 level increments with a tank empty LED. The LEDs should be a bright type that is readable in sunlight, and have a full 180 degree of clear viewing.

To further alert the pump operator, should have a warning flash when the tank volume is less than 25%, and should have "Down Chasing LEDs when the tank is almost empty.

The level measurement should be ascertained by sensing the head pressure of the fluid in the tank or cell.

PAINT

The cab should be two-tone, with the upper section painted Black #101 along with a shield design on the cab face and lower section of the cab and body painted Red #80.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly should be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that should be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.

PAINT, COMPARTMENT INTERIOR

Interior of compartmentation should be painted with a gray spatter type paint.

REFLECTIVE STRIPES

Three (3) reflective stripes should be provided across the front of the vehicle and along the sides of the body. The reflective band should consist of a 1.00" gold stripe at the top with a 1.00" gap then a 4.00" white stripe with a 1.00" gap and a 1.00" gold stripe on the bottom.

The reflective vinyl band should be provided across the front bumper.

CHEVRON STRIPING, REAR

There should be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, should be covered.

The colors should be red and yellow diamond grade.

Each stripe should be 6.00" in width.

This should meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface should be covered with chevron striping.

JOG(S) IN REFLECTIVE BAND
The reflective band located on each side of the apparatus body should contain one (1) jog(s) and should be angled at approximately a 45 degree "s" when installed.

OUTLINE, REFLECTIVE STRIPE
A Black outline should be applied on the top and the bottom of the reflective band. There should be three (3) set of outline stripes required.

REFLECTIVE STRIPE INSIDE RUBRAILS
A white reflective stripe should be provided inside the extruded aluminum rubrails or on the outside centered on the stainless steel rubrails.

REFLECTIVE STRIPE ON FRONT BUMPER
There should be a yellow diamond grade and a red diamond grade reflective stripe provided on the front face of the front bumper. The striping should consist of a series of 6.00" Chevron stripes with .25" black vinyl on seams.

CHEVRON/INVERTED "V" STRIPING ON CAB AND CREW CAB DOORS
There should be alternating chevron striping located on the inside of each cab and crew cab door. The striping should consist of a 6.00" wide yellow diamond grade stripe with a 2.00" red diamond grade stripe applied over the diamond grade material.

LETTERING
The lettering should be totally encapsulated between two (2) layers of clear vinyl.

LETTERING, GOLD LEAF
Lettering should also be provided on the rescue box (both sides). Graphics will be determined at the pre-construction conference.

LETTERING, GOLD LEAF
Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade should be provided.

LETTERING, REFLECTIVE
Twenty-one (21) to forty (40) reflective lettering, 3.00" high, with outline and shade should be provided.

LETTERING, REFLECTIVE
There should be reflective lettering, 18.00" high, with outline and shade provided. There should be four (4) letters provided.

LETTERING, REFLECTIVE
There should be reflective lettering, 10.00" high, with outline and shade provided. There should be four (4) letters provided.

LETTERING, REFLECTIVE
There should be reflective lettering, 8.00" high, with outline and shade provided. There should be twelve (12) letters provided.

LETTERING VINYL SEE THRU (COMPANY PATCH) EMBLEM
There should be two (2) vinyl emblem(s), approximately 13.00"-15.00" in size, installed crew cab windows. The emblem should be modeled after the department submitted information (art, patch, etc.).

MANUAL, FIRE APPARATUS PARTS
Two (2) custom parts manuals for the complete fire apparatus should be provided in hard copy with the completed unit.

The manual should contain the following:
- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in Alphabetical order
- Instructions on how to locate a part

The manual should be specifically written for the chassis and body model being purchased. It should not be a generic manual for a multitude of different chassis and bodies.

MANUALS, CHASSIS SERVICE
Two (2) chassis service manuals containing parts and service information on major components should be provided with the completed unit.

The manuals should contain the following sections:
- Job number
- Table of Contents
- Troubleshooting
- Blink Code Definitions with Probable Causes
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual should be specifically written for the chassis model being purchased. It should not be a generic manual for a multitude of different chassis and bodies.

MANUALS, CHASSIS OPERATION
Two (2) chassis operation manuals should be provided.

WARRANTY
The following item(s) should be covered under warranties. The vendor is required to provide their most comprehensive warranty and information on such warranty. A copy of the warranty certificate should be submitted with the bid proposal.

Engine
Pump
Steering Gear
Chassis Structural Integrity
ABS Brake System
Front and Rear Axle Material and Workmanship
Transmission
Apparatus Body Structural Integrity
Aerial Device Structural Integrity
Aerial Swivel Warranty
Hydraulic System Components Warranty
Hydraulic Seal Warranty
Aerial Waterway Warranty
Paint and Corrosion
Gold Leaf Lamination & Workmanship
Manufactures Warranty for all Major Components

Loose Equipment

The following equipment should be furnished and mounted with the completed unit:

Extrication

1	375780000	Hurst Power Unit -JL- QE (60Hz)
1	362R513	Hurst JL-500 Cutter Streamline
1	362R539	Hurst ML-28 DEFENDER Spreader Streamline
1	257R154	Hurst T-41 Ram Streamline
1	257R155	Hurst T-59 Ram Streamline
1	PPJLSE	Plastix Plus JLSE electric power unit tray
1	PPJL500	Plastix Plus Horizontal mounting bracket for JL 500 cutter
1	PPML28	Plastix Plus Horizontal Mounting Bracket for ML28 Spreader

Specification for: **Charleston Fire Department**			Bidder Complies	
			Yes	No
1	PPT41	Plastix Plus Horizontal Mounting Bracket for T41 Telescoping Ram		
1	PPT59	Plastix Plus Horizontal Mounting Bracket for T59 Telescoping Ram		
1	272085000	Hurst S 700E2 Cutter W/ 2 EXL Batteries And Charger		
1	271555000	Hurst SP 555E2 Spreader W/ 2 EXL Batteries And Charger		
1	274085000	Hurst R 421E2 Ram W/ 2 EXL Batteries And Charger		
1	362R542	Hurst SC 757E2 Combination Tool W/ 2 EXL Batteries And Charger		
1	PPS700E	Plastix Plus Horizontal Mounting Bracket for S700E2 cutter		
1	PPSP555E	Plastix Plus Horizontal Mounting Bracket for SP555E2 spreader		
1	PPSC757E	Plastix Plus Horizontal Mounting Bracket for SC757E2 Combi Tool		
1	PPR421E	Plastix Plus Horiz/vert mounting bracket for R411E Ram		
1	SET CB6	ResQtec Crib block set (4)		
1	FHU-HR1	Hydra Ram 4" spread		
1	FHU-HR2	Hydra Ram 6" spread		
1	STX-4PTX	Steel X-Strut 4-Point Kit, Res Q Jack Jack		
4	ACC-LOAD	Res Q Jack, Load Pad		
1	FR-485	Hi-Lift Jack, First Responder		
2	3ZC59	Bottle Jack 4t		
2	3ZC63	Bottle Jack 20t		
2	3ZC61	Bottle Jack 8t		
1	26030	Heavy-Duty Aluminum Hydraulic Service Jack with Lifting Capacity of 3 tons		
1	Zeon 10-S Multi m	Warn Electric Winch, HP, 12VDC, 10k lb		
1	29460	Warn Heavy Duty Accessory Kit, For Winches		
1	885000	Portable Electric Winch, HP, 115VAC		
1	22-796855	Paratech Interstate Kit		
1	22-796530	Paratech monopod		
1	22-796575	Paratech hitch base		
1	22-796010	Paratech Tripod Head		
1	22-796155	Paratech 30 ft Chain with Grab Hook		
1	22-796360	Paratech LongShore Strut 610		
2	F11-6-S	J hook with chain and cluster		
1	JYD-CB	Junk Yard Dog Crash Bag w/ case		
1	RWC-2	RHYNO RWC-2 Soft Carry Bag Kit		

		Pneumatics		
1	22-889117G2	Paratech, Maxiforce G2, Model 117 lift bag kit		
1	22-890300G2-150	Paratech, Master Control Kit, G2		
1	22-887100K	Paratech, Medium Pressure Air Cushion Kit, 6 ton		
1	911-RKM	AJax Super Duty Master Kit		
1	5ZL30	Right Angle Air Cut Off Tool, Wheel Dia.: 3" (wizzer)		
		Rope Rescue		
1	JSA-200	Plastic Stretcher Junkin		
1	JS-JSA-300-X	Junkin bridle		
2	KT1750	Rescue3 Picket System		
1	YA900	Yates Spec Pak		
2	C71AFN0U	AVAO BOD full body harness, Class III, Petzl		
3	C71AFN1U	AVAO BOD full body harness, Class III, Petzl		
3	C71AFN2U	AVAO BOD full body harness, Class III, Petzl		
2	300432	Swivel Double Pulley, CMC		
4	P65A	PETZL Twin Double PMP		
7	P60A	PETZL Minder Single PMP		
1	300391	Kootenay Ultra pulleys, knot passing		
2	345024	Petzl Ascenders Right		
2	345025	Petzl Ascenders Left		
20	SM100007N	PMI SMC Locking D Steel Alloy Black NFPA Carabiner		
2	P58 L	Swivel Bearing		
2	P63 M	Rigging Plate, PAW		
2	294044	Ultra-Pro™ Edge Protectors		
4	RC48019	PMI Black Supermantle Rope Guard 36"		
1	RP302D	EVAC SAR Pack Blue		
1	RP302D	EVAC SAR Pack Black		
1	80141RD	RT Large Rope Bag, Blue		
1	80141BL	RT Large Rope Bag, Red		
2	80141YE	RT Large Rope Bag, Yellow		
2	RR125RW061E	Rescue Rope, PMI Classic, 12.5mm, 200', Red/White		
2	RR125BW061E	Rescue Rope, PMI Classic, 12.5mm, 200', Blue/White		
2	RR125YW061E	Rescue Rope, PMI Classic, 12.5mm, 200', Yellow/White		
1	RR125RW092E	Rescue Rope, PMI Classic, 12.5mm, 300', Red/White		
1	RR125BW092E	Rescue Rope, PMI Classic, 12.5mm, 300', Blue/White		

1	RR125YW092E	Rescue Rope, PMI Classic, 12.5mm, 300', Yellow/White		
1	CC080WG050S	PMI 8mm Red/Blue Prusik Cord, 50 Meters		
1	CC080WF050S	PMI 8mm Green/Red Prusik Cord, 50 Meters		
1	WB59001	1" Red Tubular Webbing 34 yards uncut PMI		
1	WB59009	1" Black Tubular Webbing 34 yards uncut PMI		
1	WB590025	1" Green Tubular Webbing 34 yards uncut PMI		
1	WB59008	1” Yellow Tubular Webbing 34 yards uncut PMI		
1	WB59004	1” Blue Tubular Webbing 34 yards uncut PMI		
1	267030	Cordage Meter		
4	HD26166	Heightec Steel Anchor Sling 7mm x 2m PMI		
2	KT36128	SM Jr Haul System, PMI		
2	201108	CMC Load Releasing Straps		
1	620415	SKED Complete Orange		
13	4815532	RT NFPA Utility Rescue Helmet Yellow		
3	4815534	RT NFPA Utility Rescue Helmet Red		
4	D200L0	I'D L, Petzl Descender		
4	P41 KIT	Aztek Standard Kit		
4	L59 MGO	Petzl, Absorbica Y lanyard – 80cm with MGO hook,		
1	382121	CMC, Screw Link, Delta 12mm,		
1	385951	CMC, Screw Link, Half-moon 10mm,		
		Confined Space		
1	575825	Ram Van Intrinsically Safe w/ tubing		
1	SV-189	Orange Manhole Saddle Vent, Inlet Dia. 8", Outlet Dia. 8", L 43-1/2", W 14-1/2"		
1	2103-01-010	Umbilical Cover 100 Ft.- Black $352.00		
1	2103-01-020	Umbilical Cover 100 Ft. - Red		
1	2103-01-030	Umbilical Cover 100 Ft. - Blue		
1	2103-01-040	Umbilical Cover 100 Ft. - Orange		
12		Air line 50’ w/ hansen safety fitting (600' total)		
1	GST-101	Godwin 2" 1 HP Sub-Prime® Electric Submersible		
1	3LX26	Aluminum Adapter, Coupling Type A, Male Adapter x FNPT Connection Type		
2	45DU48	20 ft. Clear and White Water Suction Hose, 2" Fitting Size, Grainger		
		Collapse		
2	EN2802DX10	10 ft. Heavy-Duty Poly Endless Web Sling w/ 12,400 lb. Vertical Hitch Capacity		
1	WS-TFRST	Zistos - Task Force Rescue System -		
1	DWM120K	Deep cut portable band saw kit, Variable speed,		
1	63991002	Arcair cutting system		

1	94463032	Arcair Conversion kit		
2	42-049-005	Arcair 3/8" x 18" slice rod		
2	42-049-003	Arcair 1/4" x 18" slice rod		
2	CLC-1604	Carpenter s Combo Tool Belt, Polyester, 29 to 46" Waist Size,		
1	6000-15	Lug-all Cable Hoist, come-a-long 3t		
1	D55151	1.1 HP, 115V, 4 gal. Portable Electric Oil-Lub. Air Comp., 125 psi, Dewalt		
4	33-730	30 ft. Steel SAE Tape Measure, Black/Yellow		
4	51-402	Framing Hammer, 22 Oz, Checkered, Hickory		
2	PC0781	A20 Hand Nailer, Plam, Senco		
		Hand Tools		
1	86212	Kobalt 300-Piece Standard (SAE) and Metric Mechanic's Tool Set		
1	55727	Kobalt 3-Pack Groove Joint Plier Set		
1	324K12K	Kobalt 12-Piece Variety Pack Screwdriver Set		
1	55740	Kobalt 3-Pack Locking Plier Set		
1	64625	Kobalt Kobalt 28-oz Smoothed Face Rubber Dead Blow Hammer		
1	DCK590L2	Cordless Kit, 20.0 V, Dewalt, (Circular Saw, Hammer Drill, Impact Driver, Light, Recip. Saw)		
1	D25980KB	1-1/8" Hex Pavement Breaker Kit, 15.0 Amps, 900 Blows per Minute		
1	DW310K	1-1/8" Blade Stroke Reciprocating Saw, 0 to 2700 Strokes per Minute, Dewalt		
1	DW364K	Circular Saw 7 1/4" with Brake and Case, 15 Amp, Dewalt		
1	FHU EKS-12	Elevator Keys, set of 12		
1	DDKEY	Universal Flex-Shaft Hoistway Door Key Set		
1	AS-27D	Shovel, Scoop		
2	RS-48F	Shovel, Round Point		
1	FHU-BC-36	Bolt Cutter 18"		
1	FHU-BC-18	Bolt Cutter 36"		
1	FHU-KTK	K tool, Fire Hook Unlimited		
1	FHU-RTK	R tool, Fire Hooks Unlimited		
1		Married set pack tool bracket		
2		Irons Strap Firehooks Marrying Strap		
1	812-1210	Power Ring Cutter, for Cobalt, Platinum, Titanium & Stainless Steel Rings		
1	32950	Big Easy Lock Out Kit		
2	30-000075	Folding Spade, 9-3/8" Handle Length, 6" Blade W, 8-3/8" Blade L, Gerber		
1	FSY-10	Sledge Hammer #10		

1	PHY-6	Flat Head Axe, Akron		
2	FHU	NY Roof Hook 6', metal pole, pry tip		
1	FHU	NY Roof Hook 8', metal pole, pry tip		
2	FHU NH-12	Pike Poles 12', National Hook, wooden pole		
2	FHU PB-30	Haligan Bar one piece probar		
1	4GAC3	50 ft. Indoor/Outdoor 125V Lighted Extension Cord, 15 Amps, Yellow		
1	4GAC4	100 ft. Indoor/Outdoor 125V Lighted Extension Cord, 15 Amps, Yellow		
1	TP-32-NF	LoneStar Axe The PIG Forcible Entry Tool, 8 lbs - 32” Notched		
1	MSE 250 C-Q	Chain saw, electric, Stihl		
1	EX50Li	PPV fan, Battery powered, Euramco		
4	FDT SC 9x12	Salvage Covers		
4	FDT SC 12x18	Salvage Covers		
4	06-0310-120PP	120PP Crow bar pinch TYPE 51"		
2	5109PS	Straight Wall Bucket, Natural #6 Canvas		
		Gas Powered Equipment		
2	CE-2188-RSD8A	Vent saws, Cutters Edge 2100 w/ mounts		
2	CE970	Cut-off saw, K-12 with mounts, Cutters Edge		
2	SEN-SCOVK	Oval Safety Can w/Bracket		
1	MS311	Chainsaw, 16", Stihl		
3	TEMTV406074	Diamond Blade, Tempest Ventmaster 14"		
3	TEMTV406101	Diamond Multi-cut Blade, Tempest Ventmaster		
6	TEMTV406003	Abrasive Concrete Blades 14", Tempest Ventmaster		
6	TEMTV406009	Abrasive Metal Blade 14", Tempest Ventmaster		
1	SBP-1	Bag, Rotary Blade		
1	EB2000	Gasoline Portable Inverter Generator, 1600 Rated Watts, 2000 Surge Watts, 120VAC		
		Ladders		
1	775-A14	SERIES 775-A Roof, 14' Ladder, Duo Safety		
1	701-12	"Fresno" Series 701 Aluminum Attic Ladder, 12' Duo Safety		
1	Model 17	Super Duty - TYPE 1AA, Little Giant		
		Pump Loose Equipment		
5		FireQuip Combat Master Flow hose, 1.75" Blue w/ NH coupling 50'		
4		FireQuip Combat Master Flow hose, 1.75" Yellow w/ NH coupling 50'		
1		Key, 5", red hose with Storz coupling 25'		

1		Key, 5", red hose with Storz coupling 50'	
1		Key, 2.5", hose w/ NH coupling 20'	
2	B-375-GAT	Elkhart, 1.50"/ ball shutoff	
2	4000-14	Elkhart, 1.50" nozzle tip	
2	281-A	Elkhart mini stream shaper	
1	AA1ST-NP	TFT Storz adapter, 5" ST rigid x 4.50" NH (F)	
1	AA2ST-NJ	TFT Storz adapter, 5" ST rigid x 2.50" NH (M)	
1	AA1SF-NJ	TFT Storz adapter, 5" ST rigid x 2.50" NH (F) RL rigid	
1	A01ST	TFT Storz Blind Cap	
1	AB3ST-NX	TFT Piston Intake Ball valve, 5' Storz x 5" NH (F)	
1	ABA4ST-SP	TFT 4" Storz rigid x 5" Storz rigid	
1	AA3HST-NR	TFT Storz, 5" ST swivel x 4.5" NH (F) LHSW	
1	A3810	Jumbo spanner wrench w/ bracket	
1		Redhead 37, 5" x 1.50" Reducer	
1		Redhead 35, 2.50" double female adapter	
1		Redhead 36, 2.50" double male adapter	
1	2285P	Akron Gate Valve	
1	PW24	Pipe wrench, 24", WF&S	
1	WK	Water Key, w/ mount, WF&S	
2	RH-101	Redhead 101, Combination Spanner wrenches	
2	RH-105	Readhead 105, Hydrant wrench w/ standard and locking	
1	FHU CM-2	Rubber Mallet	
2	SMP-50	Redhead, 5" Storz mounting plate	
1		2.50" x 1.50" Reducer	
4		Southpark 2.50" trilocks	

Water Rescue

2	2251 M/L	NRS Extreme SAR Drysuit, M/L, Red	
5	2251 XL/XXL	NRS Extreme SAR Drysuit, XL/XXL, Red	
2	2161	NRS Zen Rescue Life Jacket, Rd - S/M	
4	2161	NRS Zen Rescue Life Jacket, Rd - L/XL	
2	2161	NRS Zen Rescue Life Jacket, Rd - XXL	
5	2056	NRS Chaos Side-Cut Helmet, Blu - Lg	
2	2056	NRS Chaos Side-Cut Helmet, Blu - XL	
2	24391-LG	NRS Reactor Rescue Gloves, Large	
4	24391-XL	NRS Reactor Rescue Gloves, X-Large	
2	24391-XXL	NRS Reactor Rescue Gloves,XX-Large	
8	71662.02	Black Diamond Spot Headlamp	
8	2755 Org	NRS Pilot Knife, Org	
8	F40C	Fox 40 Classic Imprinted Whistle	

4	10132.03	NRS Expedition Union Suit, Large		
4	10132.03	NRS Expedition Union Suit, XL		
8	2338	NRS Kodiak Workboot (sizes: 1-9, 2-10, 2-11, 2-12, 1-13)		
4	3075 L	NRS Purest Duffel-Large, Rd		
8		H2O Rescue Gear, Side Arm Throw Bag 5/16" rope, 50'		
8		Princeton Tec League Flashlight, yellow		
1	RT 460008	Life Ring		
		Safety		
1	BN 9005/02	AC Hotstick		
1	5925-01-651-2042	Lockout/Tagout Kit, Filled, Electrical/Valve Lockout, Tool Box, Blue		
1	RP4521	DQE Luminite 15' Inflatable Light Tower		
2	ELSS-XLAC	AC SceneStar LED Scene Light Head		
1	200954-02	Scott RIT pack III, Carrying bag, shoulder strap, 6' EBSS hose, 5' RIC Hose, RIT pack III Facepiece, EZ Flo Regulator Scott		
1	804723-01	Scott 60 min cylinder		
2	CH200MRSL	Search Rope Bag All Hands RIT		
2	1878-5	Glove, Welding, 21 In L, Blk and Gold, L, Pr		
2	5T179	LeatherWelding Bib Apron, Length 36"		
1		Spring Cones, mesh, w/ rubber base 3lb, set of 5, TrafFix Devices		
2	6AJ60	Chain Saw Chap, M/L, Orange		
2	5AN17	Chain Saw Chap, XL, Orange		
1		Vinagrip or Dri-deck matting installed on each shelf and compartment floor		
1	90110400499991000	AED, Zoll AED Pro semi auto only, includes backlit LCD Screen, soft case, rugged over molded outer housing, multi-patient internal memory, IrDa port, 5 year warranty.		
1	8019-0535-01	SurePower rechargeable Lithium ion battery pack, Zoll		
1	8200-000100-01	Single bay charger for SurePower Batteries, Zoll		
2		Zoll AED Pro battery		
1	M01-0308-00	Multi-Rae complete vehicle mounting kit		
1	003-3004-000	Multi-Rae Automotive charging adapter		
1	MAB3-01C127E-020	Multi-Rae Lite, 5 gas detector (O2, LEL, H2S, CO, HCN)		
1		Roll of pH paper		
1	4250810	RadEye SPRD Spectroscopic Personal Radiation Detector, Thermo Scientific		

1	425067046	RadEye G holster, Thermo Scientific	
1	38-872-750-00	Binoculars, 7x50 Steiner	
5	2AAG5	Ear Muffs, Grainger	
2	SAC-44-E	Wheel Chock, Ziamatic w/ brackets	
2	10145771	Thermal imager camera, MSA evolution 6000, w/ vehicle kit (Charger, 2 batteries, retractable lanyard and carabiner)	
2	10145951	Battery, MSA Evolution 6000	
5		SCBA, Scott AP75 4500 psi., carbon cylinder w/ air integrated Pak Tracker, Dual EBSS, quick connector regulator, Epic III voice amp w/ mounting brackets (45 min)	
10	804722-01	SCBA, Scott spare 4500 psi. carbon cylinders	
5	SL-44451	Streamlight, Fire Vulcan lights w/ 12v chargers	
5	90509	Streamlight Survivor lights w/ 12v chargers	
1	6YG04	Water cooler, Grainger	
1	5DFL9	Canopy Tents 10x10, orange, Grainger	
1	A240	Amerex 240, Water Can Ext. w/ straps and mount	
1	A411	Amerex A411, Dry Chemical Ext. w/ mounts	
1	A311	Amerex 311, CO2 Ext. w/ mounts	
2	CH-312	2.5 gallon water extinguisher strap	
1	3b	Knox KeySecure Model 3b w/ LED light display	

Communications

1	M25URS9PW1N	APX6500 7/800MHz Mobile w/ dual remote head (To be mounted on delivery, location specified during pre-construction)	
1		• Astro Digital CAI - G806	
1		• Smartzone Operation - G51	
1		• P25 9600 Baud Trunking - G361	
1		• APX05 Control Head - G442	
1		• Control Head Software - G444	
1		• Remote Mount - G67	
1		• 3db Low Profile Antenna - G174	
2		• Palm Mic - W22	
2		• Auxiliary 15W Water Resistant Speaker G831	
1		• 2 Year Repair Service Advantage - G24	
1		• Dual Control Hardware - GA00092	
2		• 50Ft. Remote Mount Cables - G609	
1	AAM28JQN9WA1	Motorola XPR5550e Mobile Radio, VHF	
1		• Remote Mount Kit for XPR5550e - PMLN6404	

Specification for: **Charleston Fire Department**			Bidder Complies	
			Yes	No
1		• Power Cable for Remote Kit (REQ) - HKN4192		
1		• Remote Mount Kit Cable - PMKN4144		
1		• VHF 1/4 Wave Antenna - HAE4008		
1	7160-0526-02	MDT Mount, the Docking Station for Getac B300 with internal power supply - Dual RF (TNC) has features like an easy-to-activate side docking handle; one-handed docking mechanism, and ergonomically designed with a smaller footprint.		
1	AP-CG-Q-S11-BL	MDT Antenna, Antenna Plus Cellular, PCS, LTE & GPS combo surface mount antenna. 3.0dBd gain 15' cable with TNC/TNC. Omni directional, color black		
1	Getac F110	Intel i7-4600U 2.1GHz Processor, 4MB Cache, 4GB DDR3 RAM, 128GB SSD, 800 NITs LumiBond Touchscreen Display, Dual batteries, 5MP rear camera, web camera, 802.11AC Wireless, Bluetooth, 4G LTE (Verizon/AT&T), Tri Pass-thru (WWAN/WLAN/GPS), GPS, 461F Ready, -21C, IP65, WIN7 64-bit Pro, 3 Year B2B, GETAC		